



Security Solutions for a Digital World

DVMS 400

Operating Instructions

Copyright and Trademark Information

Copyright

This document, the Gyr DVMS 100 and all related materials are
© Copyright 2000, Gyr, Inc. All rights reserved.

Trademarks

The Gyr DVMS 100 is a trademark of Gyr, Inc. All other trademarks
are property of their respective holders.

Caveats

Information in this document is subject to change without notice.

Installation of the DVMS 100 requires technical and mechanical ability
and requires precautions against electrostatic discharge. The user
assumes all risks when this product is installed by anyone other than an
authorized Gyr dealer.

IMPORTANT NOTES:

You should not remove the cover of your DVMS 400.



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



If your DVMS 400 requires repair please contact Gyyr.

WARNING: The DVMS 400 is intended for indoor use. To reduce a risk of fire or electric shock, do not expose this product to rain or moisture.

The DVMS 400 has a switching power supply (115/230 V). It is shipped with the correct voltage setting for your location. When you remove the protective sticker from the back of your unit check the voltage setting before plugging in your unit.

Check this switch for the correct voltage setting for your location.

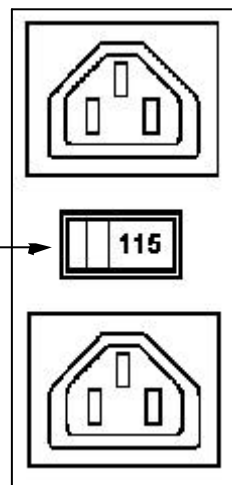


TABLE OF CONTENTS

Introduction	1
The Gyyr DVMS 400	1
Features	2
Sample Setup	4
Chapter 1: Installing the DVMS 400 System	5
Hooking Up Your Equipment	5
Video Cameras	5
Video Monitor	6
Microphone	6
Speaker	6
Text Insertion Ports	6
Alarm Inputs	6
Alarm Output	7
Arm Alarm and Alarm Reset	7
Remote Access Port (EIA-232)	7
SCSI Connector	8
PC Card Slot	8
Cables	8
Using the Setup Program	9
Using the Cursor Controls	9
Entering the Setup Program	11
Exit Function	12
Change Password	12
Calendar	14
Setting Recording Times for a Day	14
Using Holiday Setup	15
Using Normal/Alternate Setup	16
Setting Alternate Time-Lapse and Pre-Event Mode	17
Clock Set	19
Disk	20
Reports	24
Creating a new report	24
Text Criteria	25

<i>Event Criteria</i>	26
<i>Deleting a Report</i>	27
<i>Editing a Report</i>	27
<i>Executing a Report</i>	27
<i>Review Events</i>	30
<i>VCR Setup (Optional)</i>	31
<i>Install</i>	32
<i>Service</i>	32
<i>Default Settings</i>	33
<i>System Info</i>	33
<i>Remote Access</i>	34
<i>System Log</i>	36
<i>Download Software</i>	36
<i>User Preferences</i>	37
<i>Switcher</i>	38
<i>Video In</i>	39
<i>Text In</i>	40
<i>Alarm Inputs</i>	41
<i>Time-Lapse Recording</i>	42
<i>Event Recording</i>	44
<i>General Setup</i>	44
<i>Arming Setup</i>	45
<i>Text Events</i>	45
<i>Alarm Events</i>	47
<i>Motion Events</i>	49
<i>Pre-Event Recording</i>	53
Setup Functions: A Reference Map	56

Chapter 2: Operation 59

Overview	59
Live Monitoring	59
Recording Video: Time Lapse and Event Recording	60
Event Handling	60
Playing Video Clips	62
<i>Normal Play Screen</i>	62
<i>Normal Play Screen: Time-lapse</i>	64
<i>Simple Play Screen</i>	65
<i>Archiving Clips</i>	66
Searching for Video Clips	67
Recording to Video Tape	68
Printing Video Still Images	68

Chapter 3: Software Update Utility	69
Overview	69
Software Update Utility	70
<i>Installing the Software Update Utility</i>	70
<i>Attaching the Null Modem Cable</i>	70
<i>Setting Up DVMS 400</i>	70
<i>The New Software</i>	70
<i>Downloading The Updated Software</i>	71
Windows Com Port Speed	72
 CHAPTER 4: Remote Access Software (RAS)	 73
Overview	73
<i>Minimum Computer System Requirements</i>	73
<i>Setting up the DVMS 400 Unit</i>	74
<i>RAS Software Installation</i>	74
Connecting to DVMS 400	75
<i>Hooking-up the Equipment</i>	75
<i>Starting the Gyr RAS</i>	76
<i>Creating an Ethernet Connection</i>	76
<i>Creating a Modem or Null Modem Connection</i>	77
<i>Windows NT Phonebook Entry</i>	79
<i>Windows 95/98 Modem Properties</i>	81
<i>Login</i>	83
<i>Using Gyr RAS without Connecting</i>	84
Monitoring Video Using RAS	84
<i>Video Monitoring Controls</i>	85
<i>Recording Video Monitor Images</i>	86
Controlling DVMS 400 with RAS	88
<i>Record</i>	88
<i>Setup</i>	88
<i>Configuration Files</i>	88
<i>Help</i>	89
<i>Search</i>	89
<i>Play</i>	91
<i>Archiving Clips</i>	91
Playing Downloaded Video Files	92
Using a Non-MMX Processor	93
Downloading DVMS 400 Software Using RAS	93
Disconnecting from the DVMS 400	94

Chapter 5: Video Formats and Digital Video	95
Frames and Fields	95
NTSC and PAL	95
Composite Video and S-Video	96
Hard Disk Speed – Throughput	97
Compression	97
Wavelet Compression	99
Audio Compression	99
 Appendix A: Modem and Null Modem Connections	 101
Overview	101
Windows 95 / 98	102
<i>Dial-Up Networking</i>	102
<i>Installing a Modem</i>	106
<i>Installing a Null Modem</i>	107
<i>Creating a DVMS 400 Modem Connection</i>	109
Windows NT	112
<i>Installing a Modem</i>	112
<i>Installing a Null Modem</i>	113
<i>Dial-up Networking</i>	116
<i>Creating a Phonebook Entry</i>	118
 Appendix B: Gyyr DVMS 400 Specifications	 123
 Appendix C: Compliance and Conformity	 127
 Index	 131

INTRODUCTION

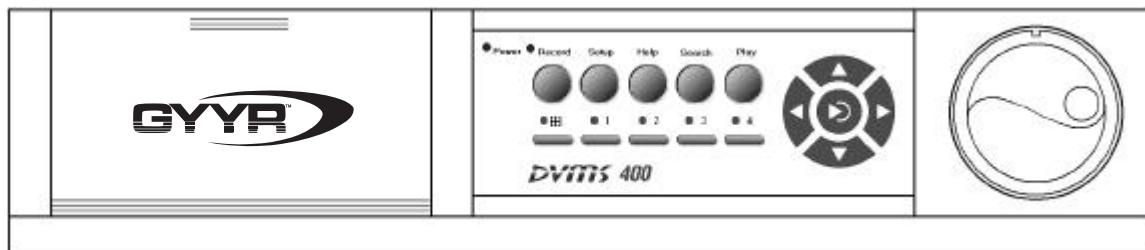
The Gyrr DVMS 400

The Gyrr DVMS 400 is the heart of your digital video time-lapse/event recorder CCTV system. Its many features include 4 video inputs, 4 built-in text inserters, a quad splitter (to allow viewing of four camera images at the same time on one monitor), a sequencing switcher (to allow 4 cameras to be monitored sequentially), 4 alarm inputs, and a 4-channel video motion detector.

The Gyrr DVMS 400 digitizes video and audio signals and records them on to a disk drive. This digital recording and playback system replaces the standard analog VCR and video tape. System reliability is improved as stretchable video tape, tape heads and tape transport are all eliminated from the digital system. This digital system has the added advantages of allowing text searches and fast retrieval of any video image (without waiting for the tape to rewind or fast forward). The digital image is encoded to prevent image tampering. A password ensures authorized access only.

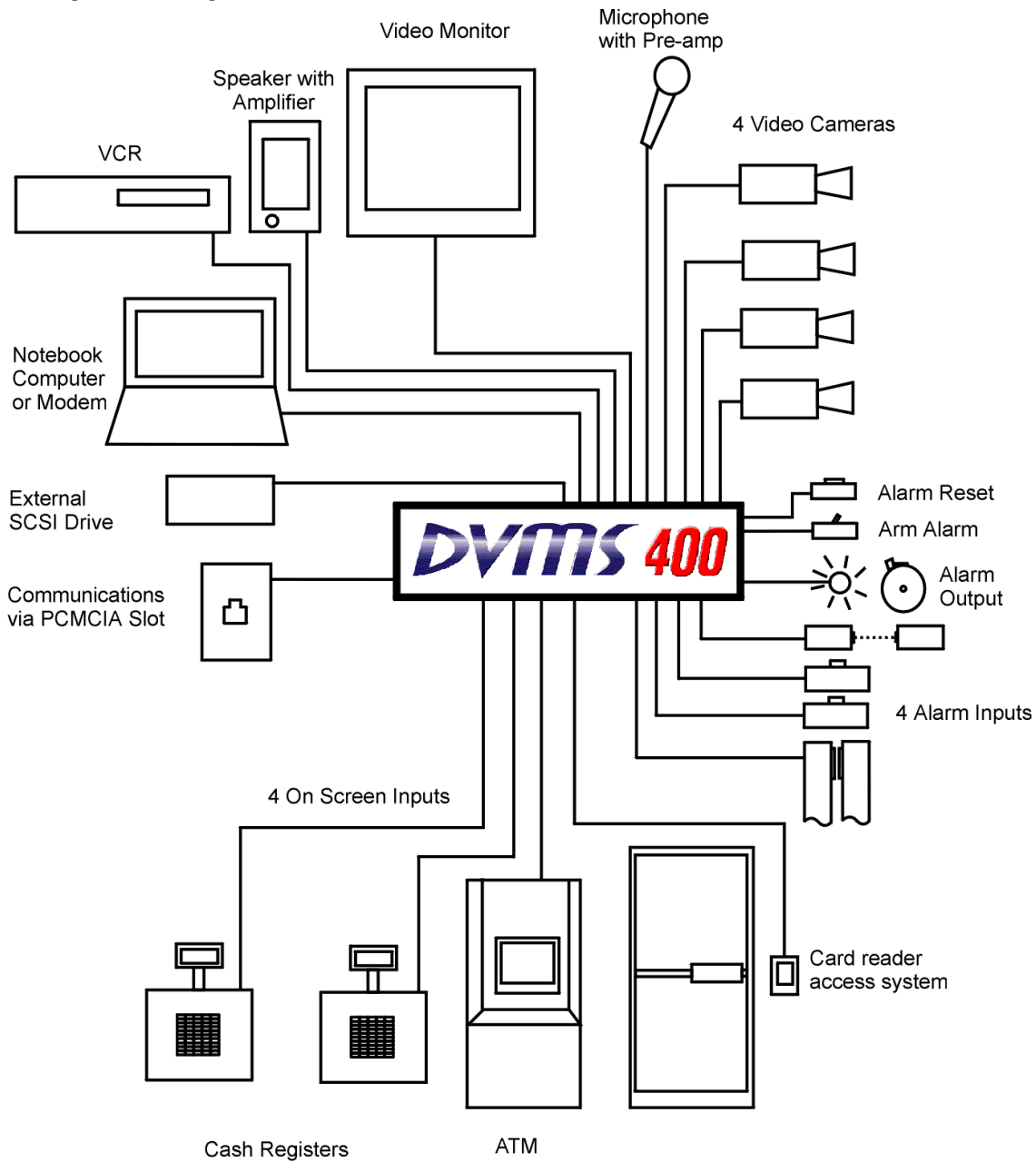
The DVMS 400 has a graphical on-screen setup program which can be operated using the cursor controls on the front panel. The settings are very flexible, allowing each user to customize the product to suit their individual needs. Once it has been set up the DVMS 400 is very easy to use, with just a few buttons controlling all normal operations.

Front View



- 4 channel text insertion for use with devices such as ATMs and electronic cash registers
- Video searchable by captured text content, date/time, event type
- On-screen color graphical user interface
- On-line, on-screen help
- Non-volatile programming (settings are not lost in case of power loss)
- Encoded image authentication to prevent forgeries or tampering
- Date/Time “burned” into every image
- Electronic lock-out without proper password
- Infra red universal remote control of consumer VCRs (optional)
- Record to video tape according to a user defined schedule
- Maximum of 7 SCSI-2 drives (2 internal maximum)
- Support for removable drives (such as the iomega Jaz drive)
- Support for DVD drives
- Remote access via a 9-pin EIA-232 port
- PC Card slot (PCMCIA) for communication needs using dial-up modems, Ethernet network cards, software upgrades, etc.

Sample Setup



CHAPTER 1: INSTALLING THE DVMS 400 SYSTEM

Hooking Up Your Equipment

The Gyr DVMS 400 is designed to work with a variety of other equipment. In this section each type of equipment will be discussed in turn. Even the most basic CCTV system will need at least one video camera, the cable needed to connect the camera to the DVMS 400 unit and a video monitor to use during the setup process. Your individual needs will determine exactly which additional pieces of equipment are attached to your DVMS 400 system.

Video Cameras

There are 8 video inputs on the DVMS 400, 4 of which can be used at any one time. Four of the video inputs are composite video inputs with loop through connectors which use twist-lock BNC connectors. Four of the video inputs are S-Video inputs which use 4-pin mini-DIN connectors. The output from your 4 video cameras goes to these inputs. Each of the 4 inputs can use monochrome or color and composite or S-Video input independent of the other inputs. However, you cannot input both composite and S-Video signals to the same input channel.

If you are using composite video inputs you may use the loop through connectors to send the signal on to another video unit. This can be useful if you want to view the video in more than one location. If you use the loop through output you must set the termination switch located on the back of the DVMS 400 unit. The switch block is labeled "On/Off 75ohms ". When using the loop through output, you must set that channel's switch to "Off". In the "Off" position, the video is passed through (HiZ) without termination. Any channel that does not use loop through must be set to "On". This terminates the video correctly at the DVMS 400. These settings affect the quality of the visible video picture.

Video Monitor

There is a composite video monitor output which uses a twist-lock BNC connector that you can use to hook up a composite video monitor. There is also an S-Video monitor output which uses a mini-DIN connector which you can use to hook up a monitor that supports S-Video. The video monitor connected to either output should use the same broadcast standard (NTSC or PAL) as your DVMS 400 unit. Both video monitor outputs may be used simultaneously to provide two monitor capability.

Microphone

There is a mono audio input on the DVMS 400 which uses a standard RCA connector. This can be used to input the sound signal from a microphone with a pre-amp, such as the sound output from a camcorder.

Speaker

There is a mono audio output which uses a standard RCA connector. This allows you to listen to the live signal from your microphone or to hear the audio signal during playback. This speaker will need its own amplifier and volume control.

Text Insertion Ports

There are 4 Text Insertion ports that use DB-9P EIA-232 ASCII inputs. The inputs for these ports may come from cash registers, ATM machines, a door card reader access system, or any other source that outputs an asynchronous ASCII output. The inputs can be set to display up to 40 characters per line and up to 10 lines per camera on your output. Once text has been recorded with the video image you can use the DVMS 400's search program to search for specific text.

Alarm Inputs

There are 4 alarm inputs which respond to either normally open/closed contacts (e.g., a hold-up button) or devices that use transistor to transistor logic (TTL) open collector signals (e.g., a PIR detector). These inputs allow an alarm to be triggered by a manually pressed button, an infra-red beam being interrupted, a door contact being opened, or any other assigned signal. The DVMS 400's Setup Program is used to assign which type of signal is used by each alarm input (see Alarm Inputs, page 41). These user defined alarm inputs are separate from the alarms that are triggered automatically if a video signal is lost or if an event is detected.

Alarm Output

When the DVMS 400 detects an alarm the alarm output contact closes, triggering any external alarm signals you have hooked up to this output (e.g., flashing lights, buzzers, bells).

Arm Alarm and Alarm Reset

The Arm Alarm input may be used to turn on or off the four Alarm Inputs. You may choose not to use this input, in which case the Alarm Inputs will always be on (unless a specific alarm has been turned off using the Setup Program). If you do use the Arm Alarm input it will turn on or off all four alarm inputs when activated. If you want to use the Arm Alarm input hook it up to a normally open or normally closed switch (such as a clearly labeled toggle switch). Use the Setup Program to select the appropriate settings (see Alarm Inputs, page 41).

The Alarm Reset input can be used to reset or clear an alarm once it has been activated. (The exact conditions needed to reset an alarm are discussed on page 44, Event Recording, and on page 66, Event Handling.) If you want to use the Alarm Reset input hook it up to switch that can be used to momentarily change the contact status (such as an alarm reset button). If you decide to use the Alarm Reset input an alarm will be considered active until it is manually reset.

Remote Access Port (EIA-232)

The remote access port is a DB-9P, EIA-232 Async port which can be used to hook up an external dial-up modem or a null modem cable to the DVMS 400.

This port is used when you want to use an external modem or a null modem cable along with the DVMS 400's Remote Access Software to control your DVMS 400 from a PC. Hooking up a computer may be useful if you want to collect data for analysis or if you want to access the Setup program. Hooking up a modem also allows you to use a computer to access the DVMS 400's video monitoring, video playback, alarm reset and Setup program from a remote site.

All remote access to the DVMS 400 is protected by password security.

SCSI Connector

A high density 50-pin SCSI connector has been provided to allow you to increase your disk storage space with external SCSI-2 drives. The DVMS 400 can support up to 7 SCSI-2 devices, with a maximum of 2 internal SCSI drives. Please consult your Gyyr Dealer if you want to add a drive to your system.

PC Card Slot

The DVMS 400 has a PCMCIA PC Card slot provided for communication needs using the small credit-card-sized PCMCIA cards used in some notebook computers. This slot can be used for a PCMCIA modem or ethernet card. Firmware upgrades can also be performed using PCMCIA flash RAM cards.

Cables

The DVMS 400 uses common cable connectors for your hookup. Before you begin to install the system you should consider the cables you will need. The type and length of cable used for your video and audio inputs is an important consideration as very long lengths can result in signal degradation. Note that when you use the loop through connectors the total cable length to the second video unit must be calculated from the camera, not just from the first DVMS 400 unit.

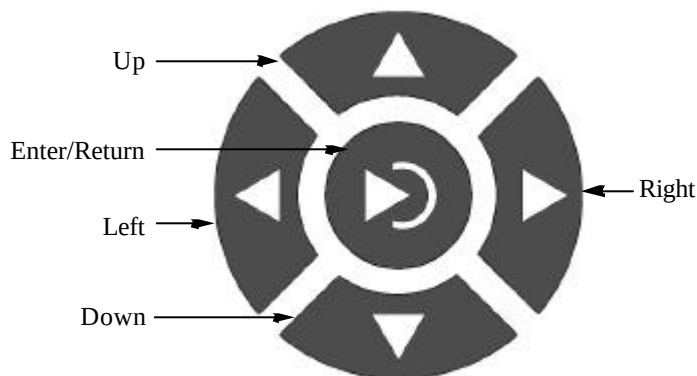
Using the Setup Program

When you first power up your system you will need to enter a number of settings to customize your DVMS 400 system. The DVMS 400's Setup program allows you to enter all the settings needed to customize your system as well as providing you with access to video reports and alarm reports.

Using the Cursor Controls

While you are using the Setup program you can control the cursor on the screen with the cursor control buttons located on the right-hand side of the DVMS 400's front panel.

The cursor control buttons may be used to move to different parts of the



screen, to scroll through a list, or to add text to a report. The part of the screen that is active (and will be affected by the cursor buttons) will always be outlined by a selection box.

When you want to change the text on screen (for example, the text used for a camera title or report title) you can select the text box, use the right and left cursor controls to move to different letters, and use the up and down cursor controls to scroll through the letters. You can also use the jog knob (the inner knob of the far right control knob) to scroll through the letters. You can also use the Camera 1 button to insert a letter, the Camera 2 button to delete a letter, and the Camera 3 button to open a Text Entry screen.

For all settings, press the Enter button to accept the change and to leave the setting mode so that you can move to another area of the screen.

Controls		
Up		Camera 1: Insert text
Down		Camera 2: Delete text
Right		Camera 3: Text Entry
Left		Jog knob: Advance
Enter/Return		

Some setup screens have boxes where you can change the text (for example, the title of a new Report, or the Camera Title) To change the text in these boxes you must highlight the box and press enter. If you then press the Camera 3 button a Text Entry screen will be opened.



The text you are changing is shown at the top of the Text Entry screen. The individual letter you are currently changing is highlighted. To move between letters use the arrow buttons at the bottom of the Text Entry screen. Use the front panel's cursor keys to move to the different buttons on the text entry screen. To use a button move to it and then press the front panel's enter key.

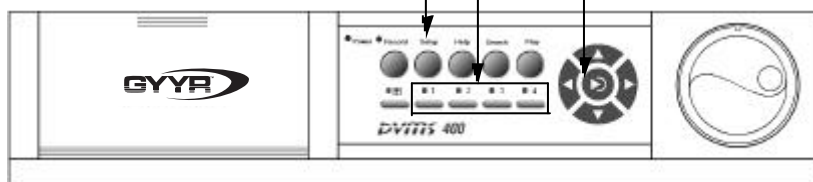
Entering the Setup Program

When you enter the setup program the DVMS 400 stops recording. If the unit is recording when you press the Setup button the DVMS 400 will warn you that recording will stop. (If you have disabled all four User Names you will not be asked for a password and you will not be warned that recording will stop.)

To start the Setup program press the Setup button on the front of the DVMS 400. You will be asked for your User Name and Password. Use a camera button to select a User Name and then use the camera buttons to enter the Password for that User Name. The default password is **1, 2, 3, 4**. Press the camera buttons in sequence and press the enter button. (Note that even if you have changed your password to 0 keystrokes you still be asked for your User Name and Password.)

To enter the setup program:

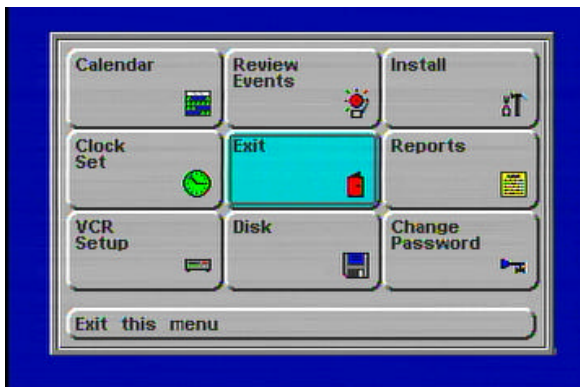
1. Press the setup button
2. Use the camera number buttons to enter your user name and password
3. Press enter.



As you enter each number in your password you will see the outlined square move across the screen. If you do not want to enter the Setup program use the down arrow to outline the on-screen Cancel button and press enter.



After entering the correct password the main Setup screen will be displayed. The main setup screen is divided into squares, each with a different function. You can move around this screen with the cursor keys and press enter to select a function.



Exit Function

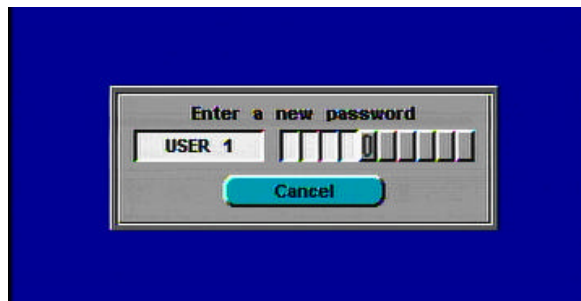
There is an Exit button on both the Install screen and on the main Setup screen. To exit the Install function and return to the main Setup screen highlight the Exit button and press enter. To exit the Setup program entirely highlight the Exit button on the main Setup screen and press enter.

Change Password

The first thing you should do when setting up a new system is to change the default password for each of the four user names. The four user names each have their own password and user access levels. Change the default password for each user name independently.

Use the cursor keys to move to the Change Password function and press enter. Select a User Name by pressing one of the four camera buttons. Each camera button is associated with one of the four User Names. The default user names are USER 1, USER 2, USER 3 and USER 4. You may change these names once you have changed your password.

Enter a new password for the user name you have selected. Use the four numbered camera buttons to enter your new password and press Enter. Once you have entered your new password, you will be asked to confirm your new password by entering your user name and new password again. Your new password can be from 0 to 10 keystrokes long. If you do not want to change your Password use the down arrow to outline the Cancel button and press enter.



Once you have successfully entered a new password (and confirmed it) you will be shown the User Permissions for that User Name.



The User Name can be changed to any text desired. Use the up cursor control to move up to the User Name box and press Enter. Use the cursor controls to enter your new user name and press Enter. (See “Using the Cursor Controls” on page 9.) Each User Name can also be given different access permissions.

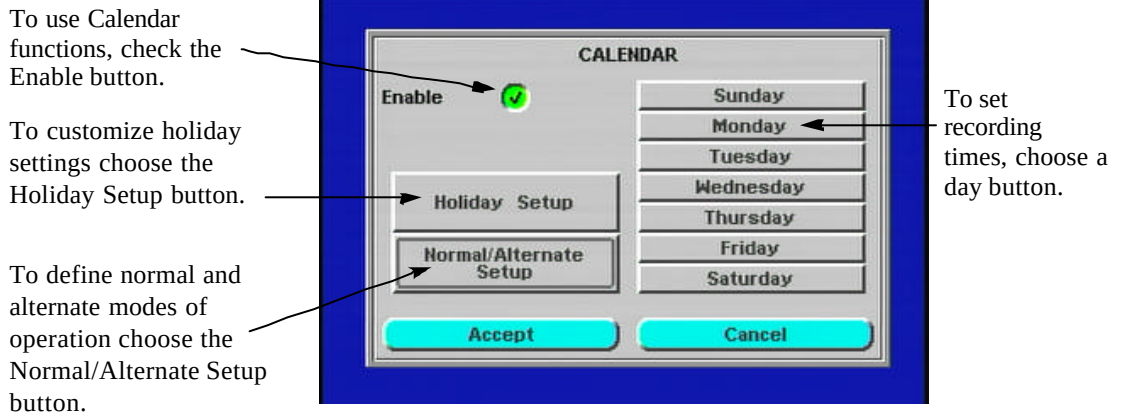
Enable User ID: If the Enable User ID is disabled, that User has no access to the DVMS 400. If you disable all four Users then the password function will be disabled when you use the unit locally (no User Name or Password will be requested). At least one User Name must be enabled if you want to use Remote Access.

Administrative Access: If Administrative Access is disabled, that User will not be able to use any of the functions accessed by pressing the Setup key. At least one user must have Administrative Access enabled.

Allow Remote Access: If the Remote Access is disabled, that User will not be able to use the Remote Access Software.

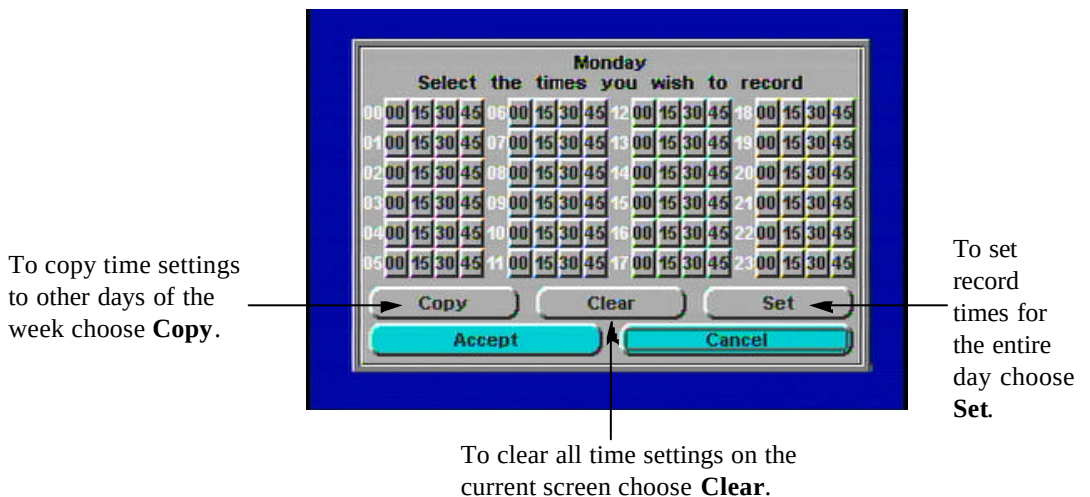
Calendar

The Calendar function allows you to set the recording times for each day of the week, assign settings for up to ten holidays, and define alternate and normal modes of operation. To access the Calendar screen select the Calendar function from the main Setup screen and press enter. The picture below shows the Calendar setup screen.



Setting Recording Times for a Day

To set recording times, choose a day button from the right side of the screen and press enter. The recording time screen for the selected day appears.



Recording times are set in 15 minute increments for each hour using the 24 hour clock format. For example, to record from 9:00 am to 5:30 pm (9:00 to 17:30 in the 24 hour clock format) press all the buttons from row 09 up to row 16; in row 17 press the 00 button and the 15 button. DVMS 400 records for the day and times you have selected.

There are three additional features on each of the day recording times screens:

- ♦ The **Copy** button copies the settings you have selected in the active screen to **all other** day screens.
- ♦ The **Clear** button clears all selected times in the active screen.
- ♦ The **Set** button selects all hours for the 24 hour day in the active screen.

When you have finished making your selections choose the Accept button at the bottom right of the active screen and press Enter. DVMS 400 saves the time settings for the day you have selected and returns you to the Calendar setup screen.

Using Holiday Setup

The Holiday Setup feature allows you to assign a custom setting for up to ten holiday dates. From the Calendar screen select the Holiday Setup button and press enter. The Holiday Setup screen appears. The picture below shows the Holiday Setup screen with the Enable button checked.

To enable the Holiday setup screen, check the Enable button.

To define the date for a holiday, check a numbered button.



To set holiday record times, choose the Select Record Times button and press enter.

To enable the holiday setup screen choose the Enable button at the top right of the screen and press Enter. The red X changes to a green check mark and the numbered date settings are available.

To set the date for a holiday follow these steps:

1. Choose the numbered X beside a date box with the cursor keys and press Enter. The X changes to a check mark like the Enable button described above.
2. Select the month box to the right of the numbered holiday button and press Enter. The month text changes from grey to black.
3. Select the month using either the cursor keys or the jog shuttle knob and press Enter. The month display returns to grey with the selected month displayed in the box.
4. Repeat steps 2 and 3 for the day box to the right of the month box. When the correct day is displayed press Enter.

After the holiday date is set you must specify the recording times for the Holiday Setup screen. Using the cursor control buttons choose Select Record Times at the top right of the Holiday Setup screen and press Enter. The screen changes to the Holidays screen. To set the Holiday record times follow the instructions on page 14, Setting Recording Times for a Day.

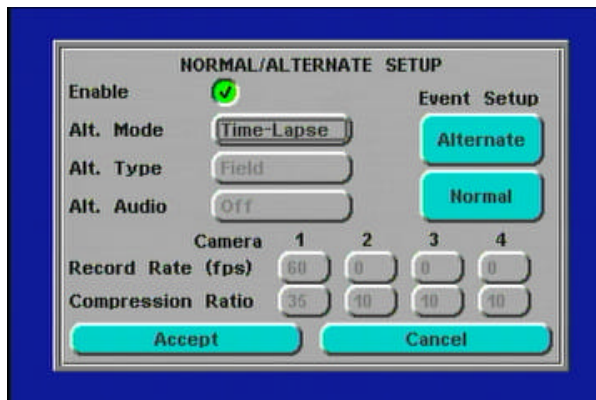
NOTE: The Holiday time settings apply to all selected holidays. Times cannot be set independently for each holiday.

Using Normal/Alternate Setup

DVMS 400's Normal/Alternate Setup feature lets you split each day into 2 time periods, the Normal and Alternate times, and to assign each time period its own recording settings. This allows you to create a secondary setup for the way your system operates. This can help you in a number of different ways. It can help you to conserve disk space during alternate hours. It can also allow you to change recording modes to adapt to changing circumstances.

For example, suppose you have an office that is open to the public from 9 to 5 on Mondays, and closed at other times. You can set the Normal recording mode for Monday from 8:30 am to 5:30 pm. During Normal recording the system uses time-lapse recording and records Alarm Events. On Mondays the office closes at 5:00 pm, all employees leave the office by 5:30pm, and system ends normal recording at 5:30 pm. After 5:30 pm the DVMS 400 enters its Alternate recording mode. When the system is in Alternate recording mode the office is supposed to be unoccupied, so it may be set to only record Motion Events.

To show the Normal/Alternate Setup screen choose the Normal/Alternate Setup button on the Calendar screen and press Enter. The picture below shows the Normal/Alternate Setup screen with the Enable button checked.



The Alternate mode is defined through the Alt. Mode box. Choose the Alt. Mode box using the cursor buttons and press Enter. The Alt. Mode box text changes from grey to black. Use the cursor keys on the front panel to toggle between Time-Lapse and Pre-Event Mode.

Setting Alternate Time-Lapse and Pre-Event Mode

After choosing an Alt. Mode (Time Lapse or Pre-Event) you can choose either Frame or Field recording using the Alt. Type text box. Move to the box and press Enter. Next, use the cursor keys to select either Field or Frame and press Enter.

The Alternate Record Rate (in fps) and Compression Ratio are set for each camera using the boxes at the bottom of the screen. See Time-Lapse Recording on page 42 for details on these settings.

NOTE: Only the Alternate time-lapse and pre-event video recording are affected by the recording rate settings and compression ratio settings on the Normal/Alternate Setup screen. For the Normal Time-Lapse and Pre-Event settings use the Event Recording and Pre-Event Recording screens accessed from the Main Setup Menu. See Pages 44-54 for details.

When the Alt. Mode Time-Lapse is selected the Alt. Audio option box appears. To enable audio capture, select the the Alt. Audio box. Choose On using the cursor keys and press Enter. Audio is now enabled for the Alt. Mode Time-Lapse setup. To disable audio choose Off.

When the Alt Mode box is set to Pre-event, the Alt. Audio box changes to an Alt. Length box. You can use this to set the length of the alternate pre-event recording. Use the cursor keys choose the min box to the right of the Alt. Length caption and press Enter. Using the cursor keys or the shuttle knob, you can select from 0 to 59 minutes. You can set seconds the same way in the sec box to the right of the min box. When you are finished selecting the alternate pre-event recording length, press enter. DVMS 400 saves the alternate pre-event length.

After the Alt. Mode and the Alt. Type have been selected, set the events you want to record during Alternate recording. Choose the Alternate button and press Enter. The screen changes to the Event Mask Setup screen.



The Event Mask Setup screen displays four selection boxes for each of the three types of event recording: Switch (Alarm), Text, and Motion. When a selection box is checked the event recording for that type of input is enabled.

For example, when all four of the selection boxes in the Motion category are checked, as in the above picture, four motion detection inputs are enabled during the Alternate recording periods.

To save the event masks for the alternate recording periods choose the Accept button and press enter. DVMS 400 returns to the Normal/Alternate Setup screen.

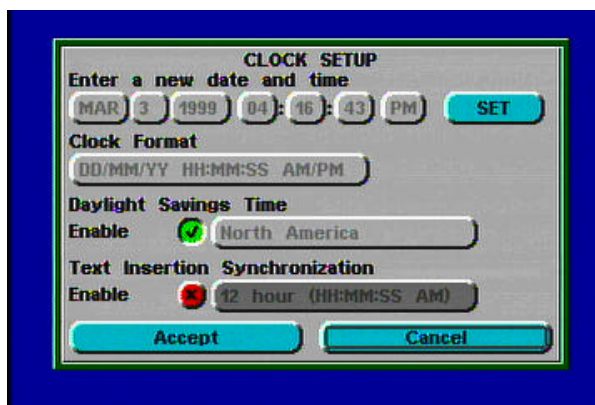
To set the Event Mask screen for the Normal recording periods select the Normal button below the Alternate button on the Normal/Alternate Setup screen and press Enter. DVMS 400 shows the Event Mask Setup screen for the Normal recording periods.

For the Normal Event Mask Setup repeat the procedure for setting up the Alternate Event Mask Setup. When the normal Event Mask Setup screen is complete choose the Accept button in the lower left of the screen and press Enter. DVMS 400 returns to the Normal/Alternate setup screen.

NOTE: When the Calendar function is enabled the Normal Event Mask Setup over-rides individual event settings. For Example, if you have enabled Motion Detection 1 and you have enable the Calendar function's Normal/Alternate Mode you **must** enable Motion 1 in the Normal Event Mask Setup for it to be enabled during Normal Mode recording.

To save the Normal/Alternate setup choose the Accept button on the lower left of the screen and press Enter. DVMS 400 saves all of the settings you have selected. Your alternate settings are now enabled. The screen returns to the Calendar setup screen.

Clock Set



To change the current date and time first select the Clock Format. The date format choices are month/day/year or day/month/year. The clock format choices are the 24 hour clock format (for example 14:30 rather than 2:30 pm) or the 12 hour clock format (using AM and PM). To change the date and time move to the month, day, year and time using the cursor controls. Use the Enter button to select an item and then use the up and down cursor controls to change the value. You can also use the jog knob (the large inner knob found on the right of the front panel) to change the value. Press Enter to accept a value. When you have finished entering the correct date and time you must press the Set button to reset the DVMS 400's clock.

You can also enable Daylight Savings Time. If you enable this option you will also need to select the correct geographic area, as Daylight Savings

Time varies from one region to another. If enabled, the DVMS 400 will automatically adjust itself by one hour in the spring and one hour in the fall. Please note, if the DVMS 400 is being used by a user at the time of the Daylight Savings Time change (e.g., camera buttons are being pressed, the Setup program is being used, etc.) the time change will not take effect. Also, if the DVMS 400 is recording an event at the time of the Daylight Savings Time change, recording will temporarily stop, the time will be changed, and then the recording will begin again.

Instead of setting the current time yourself you may enable the “Text Insertion Synchronization” function and the date and time used by your DVMS 400 will be set to the date and time used by the devices connected to your Text Insertion Input ports. If more than one input contains clock information, it is recommended that you do not use this option and that you set the current date and time yourself.

Disk

The Disk function allows you to setup, configure, and check the status of the disk drives used to store your digital video. When a disk is installed and operating in your DVMS 400 a button will be highlighted on the Disk Setup screen. The number of additional buttons you see enabled on the Disk screen will depend on the number of additional drives you have installed in your system. If you have purchased optional removable media drives you will also be able to check their status using the Disk status buttons.



Before you use your DVMS 400 you should check the **Disk Setup** screen. It allows you to select and control the way data will be saved to your disk drives.

On the Disk Setup screen you will need to select the percent of the regular drive space that you want to be used for Event mode recording (video recording triggered by events) for each drive you have installed. The rest of the space will automatically be used for time lapse recording.

NOTE: If you want to change the % used for Event Mode all the video clips will have to be cleared from the drive before the new setting can be applied. Make sure you set the % you want to use for Event Mode before you begin recording video.



There is a box at the top of the Disk Setup screen to allow you to select an archive drive. If a drive is not selected, all of your drives, including your removable disks, will be used for event or time-lapse video clips. Removable disks are not as robust as fixed drives, and they may fail if they spin continuously for months. Therefore, removable disks should normally be used for archiving purposes only.

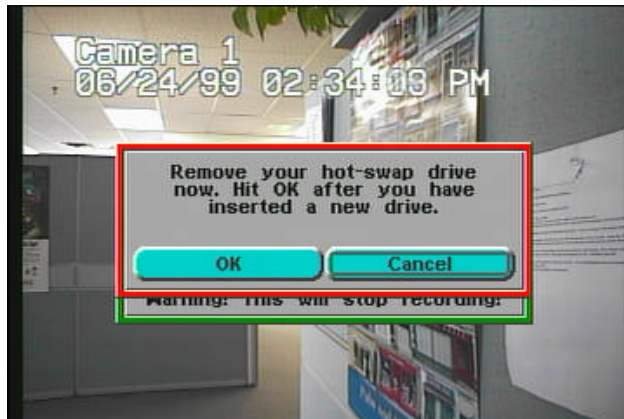
The SCSI Termination box allows you to set your drive's on-board termination. The Auto option is recommended. If you are familiar with SCSI termination, you can set the option to On or Off depending on what other devices are connected to the DVMS 400.

The Disk Setup screen allows you to clear all video clips from your drives using the Format All button. The Clear Events button clears only event video clips and the Clear Lapse button clears only Time-Lapse video clips.

DVMS 400 allows you to specify a single drive as a Hot-Swap drive. A Hot-Swap drive can be removed and replaced with another drive while the unit is powered on. This allows easy archiving of large amounts of data. For example a weekly archive could be managed using seven large drives, replaced on a daily basis and rotated weekly using the Hot-Swap function.

To setup the Hot Swap feature use the Disk Setup menu to select a drive number as your Hot-Swap drive and press Enter.

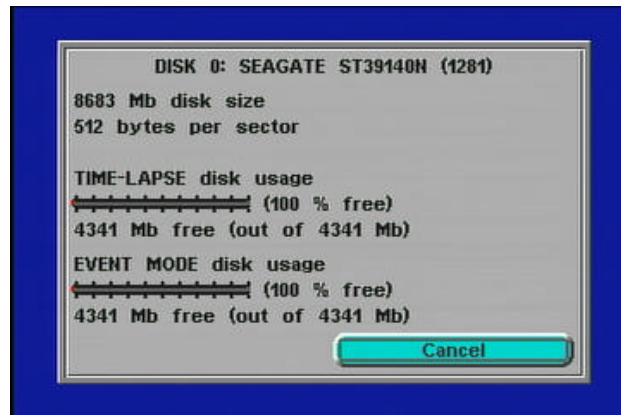
To use the Hot-Swap feature exit the Main Setup screen. Press the Help button on the front panel of the DVMS 400. The User Name dialog box appears. Enter your User Name and Password and press Enter. A text box appears prompting you to remove your Hot-Swap drive. Follow the Instructions on the screen to complete your Hot-Swap.



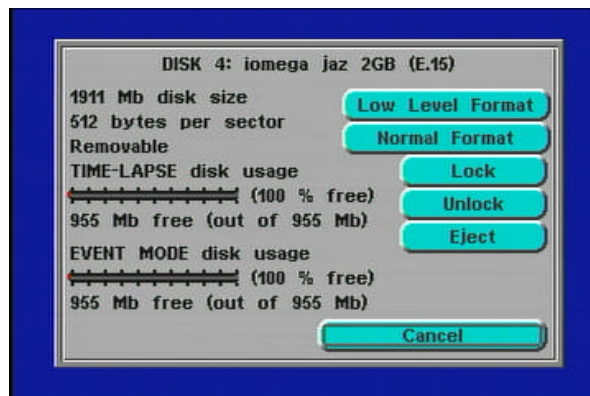
NOTE: All drives being swapped into the unit must have the same SCSI id. To avoid possible data loss, it is recommended that you use only one regular disk on your system to record when using the Hot-Swap feature. A second drive for archiving is allowable when using Hot-Swap. When the archive drive is designated as the Hot-Swap drive, the single disk restriction does not apply.

Each disk has an individual status report which is accessed by selecting the Disk button. For example, to view the status of Disk 1 select the Disk 1 button and press enter. The screen changes to the status screen for that drive.

Fixed Disk Status screens will show you information about the total amount of drive space as well as the amount of drive space left in the time lapse and event portions of the disk.



Removable media drive status screens allow you to work with removable disks. You can lock or unlock a disk (locked disks cannot be ejected), eject a disk, and perform a Normal Format to clear all video clips from a disk. You can also perform a Low Level Format before you use a disk which was previously formatted to be used with a computer. Note that a Low Level Format can take up to half an hour. A Normal Format will only take a few minutes.



Reports

One of the advantages of a digital video system is the ability to search through the recorded video for specific conditions and to move quickly to the video that meets those conditions. The Report function allows you to set up the conditions that can be used for a search, or simply to define the time period you are interested in viewing. You can set up as many reports as you want, and edit or delete them according to your needs.

When you press the Report button you will be shown a list of Reports. To create a new report highlight the “Create new report” item in the list and press enter. To exit the report function highlight the “Exit this menu” item in the list and press enter. To scroll through the existing video reports use the up and down cursor controls. To access an existing report, highlight the report’s title and press enter. This will activate the buttons at the bottom of the screen. To go back to scrolling through the report list, highlight the Cancel button and press enter.



Creating a new report

To create a new report highlight the “Create new report” item in the list and press enter. Your new report will need a title. Highlight the Title box at the top of the new report screen and press enter. You can move through the letters in the title using the right and left cursor control keys. You can change each letter using the up and down cursor control keys or the jog knob. You can also use Camera button 1 to insert or append a letter, Camera button 2 to delete a letter, and Camera button 3 to open the text entry screen. If you have deleted all the letters in the Title you must insert letters with camera button 1 or camera button 3 before you will be able to use the cursor keys or the jog knob to change letters. When you are satisfied with your title press enter so that you can move to another area of the screen.

Choose Text or Event to select the type of report you want to create.

The buttons following “When to search?” (at the bottom of the screen) allow you to limit your report based on a time period. You may specify the time using “Between”, “Previous” (the specified number of hours previous to the current time), “Before” (all the video recorded before the time specified), or “After.”

You may choose to create a Text or an Event based report. Move to the check box next to Text or Event and press enter. The box you have selected will be clearly indicated by a green check mark. Once you have selected the type of report you will need to highlight the “Report Criteria Setup” button and press enter. This will open the Text Criteria or Event Criteria screen.

Text Criteria

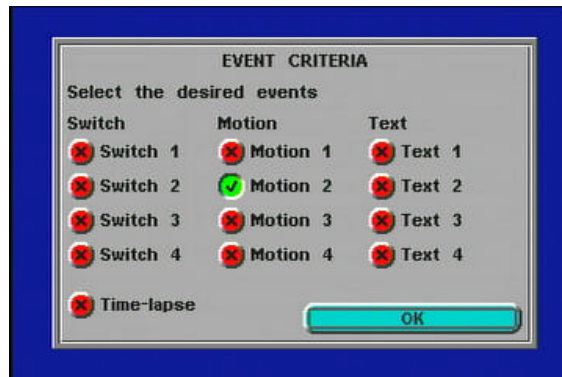
If you choose to create a report based on the text recorded with your video you will need to select which of the 4 Text Insertion port's (or ports') records will be searched. Choose which text input port(s) you want to search by highlighting their check boxes and pressing enter.

You may specify up to 3 text search conditions for each report. If you select more than one condition your search will report if any one of them is found. The left hand box allows you to enter the text (letters and/or numbers) you are searching for. If the Case Sensitive option at the top of this screen is enabled, then text searches will consider upper and lower case letters to be different letters. The two right hand boxes allow you to search for numbers. The center box may have a =, >, < or an X. If it is =, >, or < the number must be equal to, greater than, or less than (respectively) the value shown. If it is an X the number box is ignored and the search routine will just look for the text string. If you are just looking for a number and the text is irrelevant enter an * in the text string box and the search routine will just look for the number.

When you do a search using a Text Based Report both time-lapse and event clips will be searched and all video clips that contain the text string and/or numbers will be reported. You will also need to set how much of each video clip will be shown for each text string found by setting how many seconds should be played before the text event occurred and how many seconds in total should be played.

Event Criteria

If you choose to create a report based on event records you will need to select which type of event will be reported.



You may select as many or as few types of events as you wish. These events are set up separately using the Event Recording function. (See page 42.) Switch events are set up using the Alarm Events function. (See page 47). Motion Events are set up using the Motion Events function. (See page 49). Text Events are set up using the Text Events function. (See page 45). Note that if you later add your own Event Text as a title for an Event Recording function the Event Text will be used on this screen. For example, if you set Motion Event 3 to use “Lobby” as its Event Text, then “Lobby” will be shown on this screen instead of “Motion 3”.

You may also select the Time Lapse button at the bottom of the Event Criteria screen to search both time lapse and event video clips.

When you are satisfied with your Event Criteria highlight the OK button and press enter. This will return you to the main report creation screen. When you are satisfied with your report, outline the Accept button and press enter. If you want to discard your changes outline the Cancel button and press enter.

Deleting a Report

If you want to delete a report use the cursor keys to scroll to the report in the list and press enter. This will activate the buttons at the bottom of the screen. Use the right and left cursor control keys to outline the Delete key and press enter.

Editing a Report

To edit a report use the cursor keys to scroll to the report in the list and press enter. This will activate the buttons at the bottom of the screen. Use the right and left cursor control keys to outline the Edit key and press enter. The edit screens are the same as the screens you used to create the report.

Executing a Report

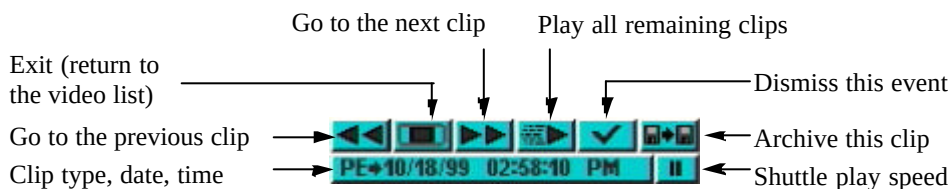
Once you have created a Report you may run it from the Report screen. Use the cursor keys to scroll to the report in the list and press enter. This will activate the buttons at the bottom of the screen. Use the cursor keys to move to the Execute button and press enter. You will be asked “Do you wish to see dismissed events as well?” You may choose yes or no. (You may dismiss events without deleting them when you are viewing them.) A search will be performed and any video matching the conditions defined in the report will be displayed in a list on the monitor.



Note that if you later add your own Event Text to an Event Recording function (to use as a title for that event) the Event Text will be used in this list. For Example, if you set Motion Event 1 to use "Front Door" as its Event Text, that text will be shown in this list instead of "Motion 1".

If you are executing a Report that uses a Text Criteria for its search, the first 8 letters of the triggering text will be used to identify the clip in the video list (instead of the event type or the Event Text). This will help you to determine which text was used to identify the clip when the Report was executed.

To play a clip in the list scroll to the clip you want to view and press enter. The video clip will play on the screen and a small on screen control panel will be displayed on top of the video. You can move the Play Control panel using the up and down cursor buttons. It can be moved from upper left, to upper right, to lower right, to lower left, to off screen (not displayed), and back to upper left. If you do not see the on screen control panel when you start to play a video clip it may have been moved off screen. Use the up cursor button to move it back on screen. You can also use the Play button (on the front panel) to toggle on or off any scrolling text you recorded with the video.



When you are playing a video clip the text at the bottom of the on screen control panel will start with a code indicating Time-Lapse recording or the cause of the event. The date and time will also be indicated.

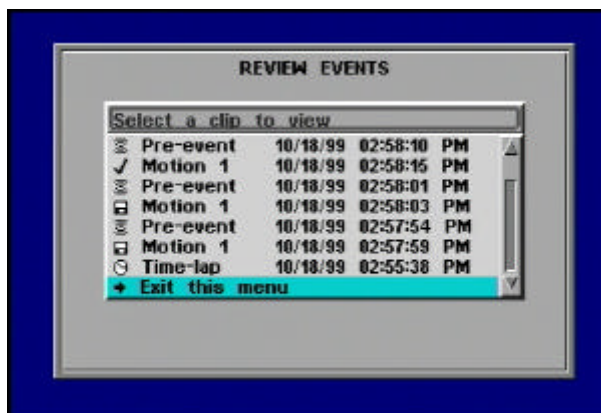
On Screen Control Panel Codes:

TL	=	Time-Lapse
M1 – M4	=	Motion event, cameras 1 – 4
S1 – S4	=	Alarm Input Switches 1 – 4
T1 – T4	=	Text Input event 1 – 4
PE	=	Pre-Event
MU	=	Multiple Alarms Active

If you use the on screen control panel's check mark button to Dismiss an event it will not be deleted. However, the next time you generate an events list you will be able to select whether or not you want your list to include the dismissed events. Dismissed events are indicated in the Review Events list by a check mark. Note the check mark button used to dismiss an event will only be shown if your video clip list does not include Time-lapse video clips.

You may use the archive button on the on screen control panel to copy a clip from a regular drive to an archive drive for storage. You can archive a clip only if you have set up a drive for archiving (see page 20). If you begin archiving a clip and you change your mind you may press any key on the front panel to abort the archive recording.

You can also archive clips from the Review Events list of video clips. Use the cursor controls to highlight the clip you want to archive and press the Rec button on the front panel. A disk icon will appear, indicating that the clip has been selected for archiving. (If you press the Rec button again the disk icon will toggle off.) You may also press the Play button on the front panel to select **all** of the clips in the list for archiving.



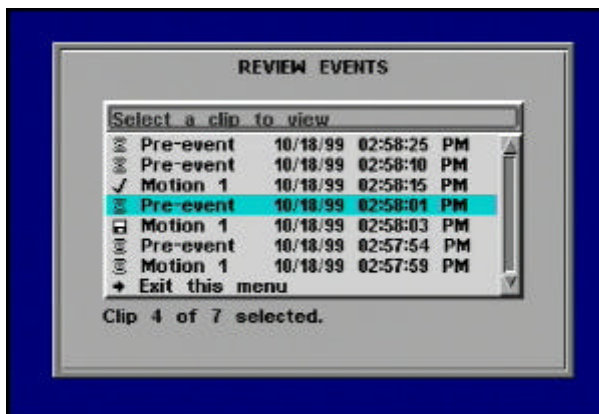
Once you have selected the clips you want to archive, press the Setup button on the front panel. A message will appear: "This will archive all selected

clips. OK/Cancel” Press OK to start copying the selected clips. While copying a status window will keep you informed of the progress. You may abort the process by pressing any key. Note that archived clips are not removed from the regular drives, they are just copied.

Review Events

An event video clip is recorded each time an event is triggered by the motion detection routine, by one of the alarm input switches, or by a text insertion port condition. (A video signal loss, reaching the end of the disk, or a system error will also generate an event, but not an event video clip.) You can view a list of event clips by selecting the Review Events function. You will be asked “Do you wish to see dismissed events as well?” You may choose yes or no. (You may dismiss events without deleting them when you are playing them.) This will open a list of all the video recorded during events.

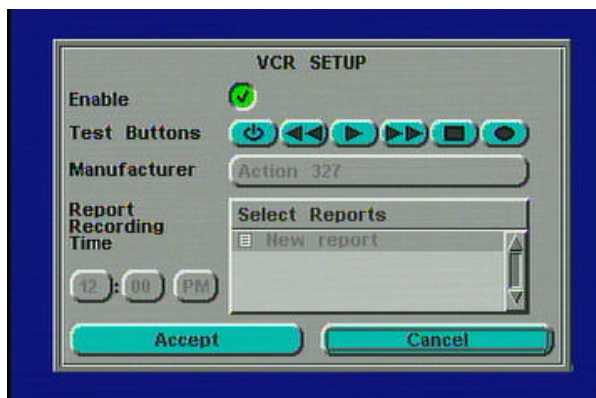
To scroll through the event list use the up and down cursor controls or the jog knob. To view an event, highlight the event and press enter. The clip will be played on your video monitor with the on-screen control panel. While you are viewing an event you may choose to dismiss it or to archive it using the on-screen control panel.



You can also archive clips from the Review Events list of video clips. Use the cursor controls to highlight the clip you want to archive and press the Rec button on the front panel. A disk icon will appear, indicating that the clip has been selected for archiving. (If you press the Rec button again the disk icon will toggle off.) You may also press the Play button on the front panel to select **all** of the clips in the list for archiving. Once you have selected the clips you want to archive, press the Setup button on the front panel to begin copying clips.

VCR Setup (Optional)

Your DVMS 400 system may have an optional consumer VCR control jack on the rear of the unit. If you have this option a cable will be supplied to direct the signal from this port to the remote control area found on the front of your VCR. This allows your DVMS 400 to control a VCR, so that it can dump the digital video it has recorded to a video tape at the programmed time you set on the VCR Setup screen.



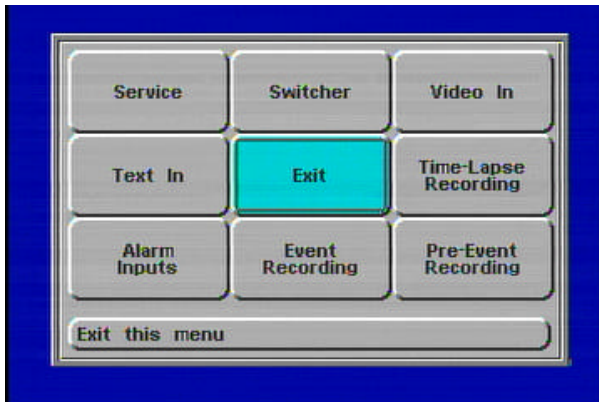
The DVMS 400 can communicate with nearly 300 types of VCRs. In order for the DVMS 400 to work with your VCR, you must choose the correct Manufacturer and model number, so that the device protocol for your VCR will be used. Use the Test Buttons at the top of the screen to control the VCR in exactly the same way as a remote control. If the Manufacturer and model number you have chosen does not work with your VCR, try another model number from the same manufacturer.

To record video clips you must select the clips you want to record by selecting the Report you want to use. All of the existing Reports will be shown on the VCR Setup screen. Highlight a Report and press enter. (To create or modify a report see page 24, Reports.) Use the cursor keys to move to the bottom left hand side of the screen and set the time when the VCR should start recording. Keep in mind that the DVMS 400 will **not** be able to record digital video while it is recording to video tape, so choose a time for recording to video tape that will not be critical for live recording. Be sure to enable the VCR recording function using the check box at the top of the screen.

Leave the VCR power off when the DVMS 400 is running scheduled VCR reports. The DVMS 400 will send a “Power” command to the VCR before and after recording to tape.

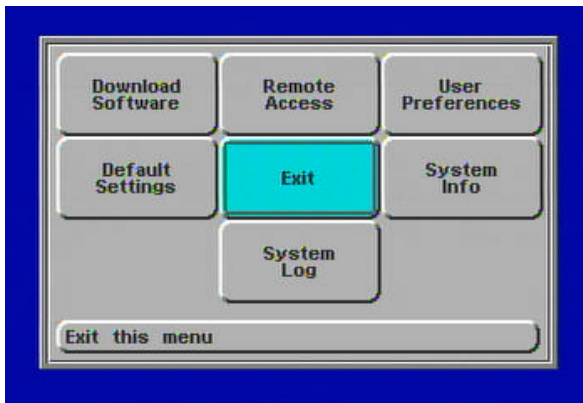
Install

To see more setup functions select Install.



Service

The Service function allows you to access some of the hardware settings, information and preferences.



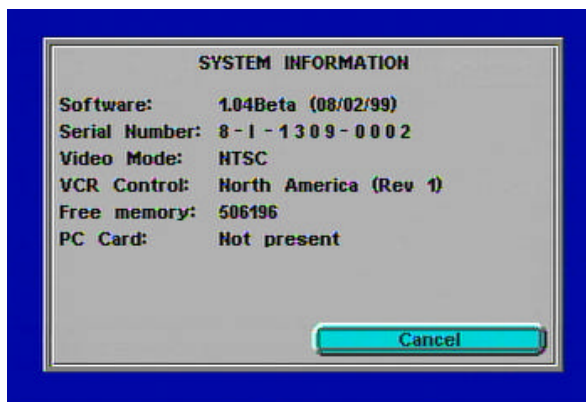
Default Settings

If you change some of the settings and you need to restore the original settings use the Default Settings function. Restoring the original factory settings will not erase any recorded video files on the disks. Please note that the passwords will also be reset to the default (1, 2, 3, 4) and the System Log will be erased.



System Info

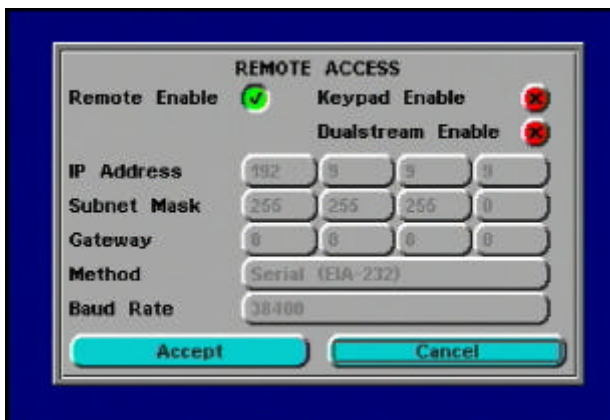
To see the system information use the System Info button.



Remote Access

There is a serial access port (EIA-232) located on the rear of the DVMS 400 unit to allow you to hook up a modem or a PC. There is also a PCMCIA slot to allow you to use a PCMCIA modem card or ethernet card. If you will be using either of these ports you will need to enable the Remote Access option. If you do not plan to use it, turning it off will give you extra protection from unauthorized access.

If you plan to use Remote Access you will need to specify the connection Method you will be using: a 9-pin EIA-232 serial port (to use a regular external modem or a null modem cable connection to your PC), a PC Card (a PCMCIA serial modem) or a PCMCIA Ethernet card.



If you will be using a dial-up modem connection you will have to specify the Baud Rate of your modem (300 - 115200 bps). If you will be using a noisy phone line use a lower baud rate. Otherwise, use the highest rate supported by your modem. If you will be using a null modem cable connection set the Baud Rate to the highest value (57600 bps).

You will need to enter a unique IP Address for each DVMS 400 unit. For example, if you have one DVMS 400 you can use the default value as shown. If you have two DVMS 400 units you can change the value in the last box from 9 to 8. Note that the DVMS 400 IP Address you set here must be different from the IP Address used by any PC you have connected to your network. (For more information about your PC's IP Address, see Appendix A.)

If you plan to use an Ethernet PC Card to connect your DVMS 400 to a network you may also have to enter a Subnet Mask address and a Gateway address. Contact your Network Administrator to find out if your network

uses these addresses. If it does you will need to enter the address numbers used. If your DVMS 400 will be connected to a network that does not use these addresses, or if it will not be connected to a network, leave the Subnet Mask and Gateway addresses set to their default values.

In the Remote Access menu, you also have the option to use the Keypad Enable function. Once this is enabled, the DVMS 400 will use ASCII text keypad commands it receives via a null modem cable connected to Text Insertion Port 4 to trigger front panel commands. If you want to send these ASCII text commands from your PC you must hook up the null modem cable to a serial communications port and use a program that sends ASCII commands to the computer's communication port (such as Hyper Terminal).

DVMS 400	Keyboard	Shuttle	Keyboard
Record	X	Clockwise Jog	+
Setup	C	Counter-Clockwise Jog	-
Help	H	Shuttle Position 0 (left)	a
Search	F	Shuttle Position 1	b
Play	P	Shuttle Position 2	c
Quad Mode	Q	Shuttle Position 3	d
Camera 1	1	Shuttle Position 4	e
Camera 2	2	Shuttle Position 5	f
Camera 3	3	Shuttle Position 6	g
Camera 4	4	Shuttle Position 7	h
Up	U	Shuttle Position 8 (pause)	i
Down	D	Shuttle Position 9	j
Left	L	Shuttle Position 10	k
Right	R	Shuttle Position 11	l
Enter	E	Shuttle Position 12	m
		Shuttle Position 13	n
		Shuttle Position 14	o
		Shuttle Position 15 (right)	p

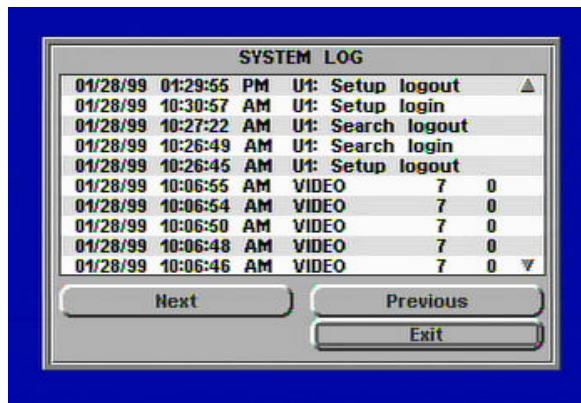
The Shuttle Positions numbers indicate the positions located on the shuttle knob on the front panel of the DVMS 400, where Shuttle Position 0 is all the way to the left and Shuttle Position 15 is all the way to the right.

Please note, if you are going to use the Keypad Enable, then you cannot use Text Insertion Port 4 for anything other than this null modem connection.

You may also enable **Dualstream Mode**. This allows you to use the Remote Access Software to playback clips on your PC and to archive clips while the unit is recording clips to the its local drive. When you enable dualstream mode you will only be able to record a maximum of 10 fields per second. All previously set recording rates that were higher than 10 fields/sec will be automatically reset to 10 fields/sec.

System Log

Use the System Log button to access the system log which provides you with a record of the times when a user logged on (users will be identified by their User number: U1, U2, U3, and U4), setting changes, system self test alarms, etc.



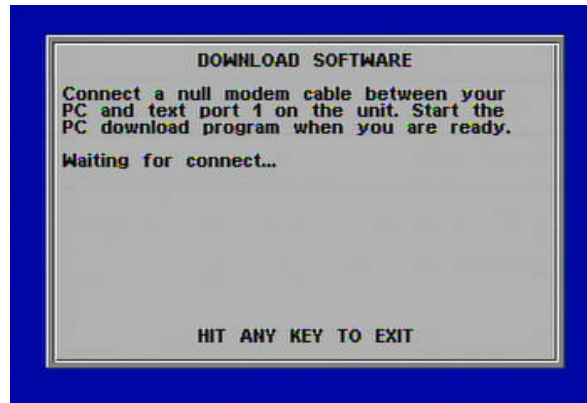
The screenshot shows a window titled "SYSTEM LOG" with a table of system events. The table has columns for date, time, and event description. Below the table are three buttons: "Next", "Previous", and "Exit".

Date	Time	Event
01/28/99	01:29:55 PM	U1: Setup logout
01/28/99	10:30:57 AM	U1: Setup login
01/28/99	10:27:22 AM	U1: Search logout
01/28/99	10:26:49 AM	U1: Search login
01/28/99	10:26:45 AM	U1: Setup logout
01/28/99	10:06:55 AM	VIDEO 7 0
01/28/99	10:06:54 AM	VIDEO 7 0
01/28/99	10:06:50 AM	VIDEO 7 0
01/28/99	10:06:48 AM	VIDEO 7 0
01/28/99	10:06:46 AM	VIDEO 7 0

The System Log can be quite long. Use the Next/Previous buttons to move between system log pages. The DVMS 400 will store up to 1000 system log entries. When the System Log is full the oldest 500 entries will be overwritten.

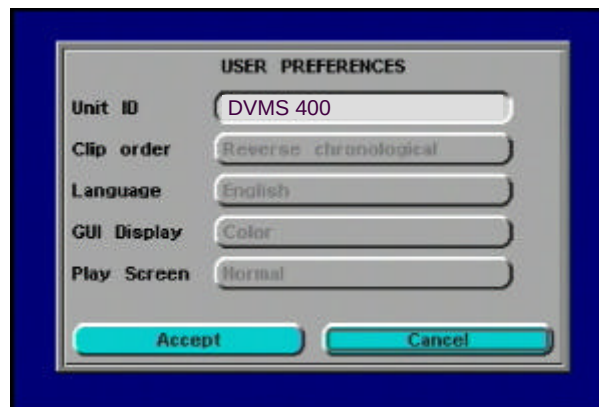
Download Software

From time to time a new version of the DVMS 400 software may be available from Gyyr. You may update your DVMS 400 from a PC using either the Software Update Utility or the Remote Access Software. If you decide to use the Software Update Utility you will need to have the Download Software screen displayed on your DVMS 400 before you will be able to update the software. Please see Chapter 3 for detailed instructions on using the Software Update Utility.



User Preferences

If you have more than one DVMS 400 unit you may want to use the User Preferences screen to enter a Unit ID so that you can distinguish one DVMS 400 from another.



You can change the order that video clips will be listed (chronological or reverse chronological order).

You can change the language that will appear on the DVMS 400 screens. Your choices are English, English (Euro extensions), French, German, Italian, Spanish, Dutch, and Chinese.

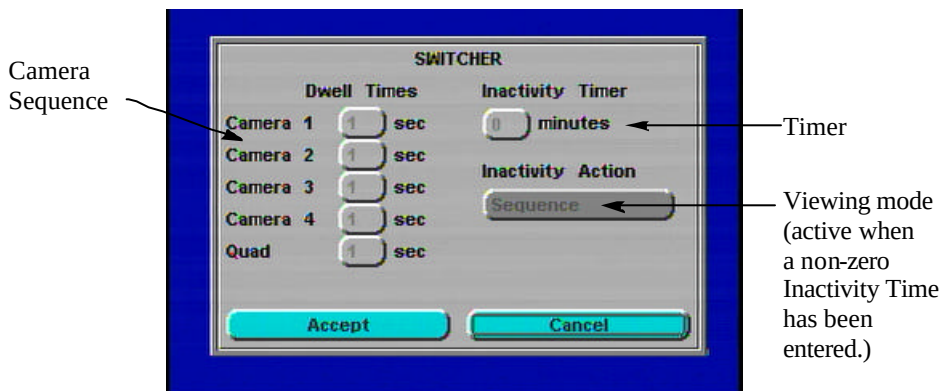
You can select a Color or Black and White GUI (graphical User Interface) display.

You can choose which type of Play screen you want to display when you press the Play button on the front panel. The Normal Play screen has all event check boxes and the time-lapse check box available as well as a time-lapse button. The Simple Play screen will only have event check boxes for the events that have been enabled in the Setup program along with the time-lapse check box. When you use the Simple Play screen you will not be given a choice whether or not to display dismissed events. When using the Simple Play screen dismissed events will always be displayed in the list.

Once you have finished setting your User Preferences, select Accept and press enter.

Switcher

If the DVMS 400 does not detect any activity (such as a button being pushed or an alarm) it can be programmed to enter one of four Inactivity Action modes.

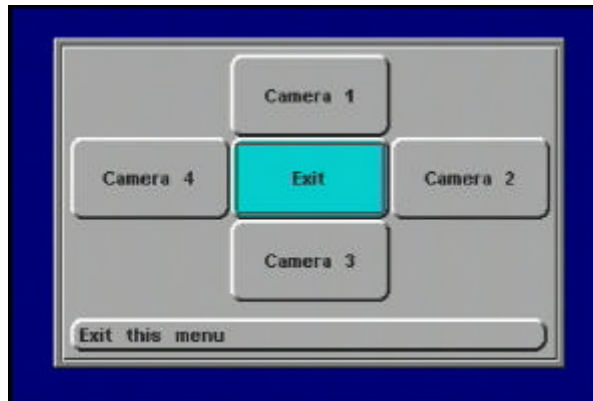


The four modes are View Free (blank the screen), Quad (stay in the quad display mode), Sequence, and Disable (to disable the switcher, leaving the unit displaying the last selected view). If you select the sequence mode the camera views will be displayed in sequence for the Dwell times you set on the left hand side of the screen (0 – 60 seconds). You can use the cursor keys or the jog knob on the right hand side of the front panel to advance the dwell times. If you want to skip a camera in your sequence simply enter a time of 0 seconds for that camera.

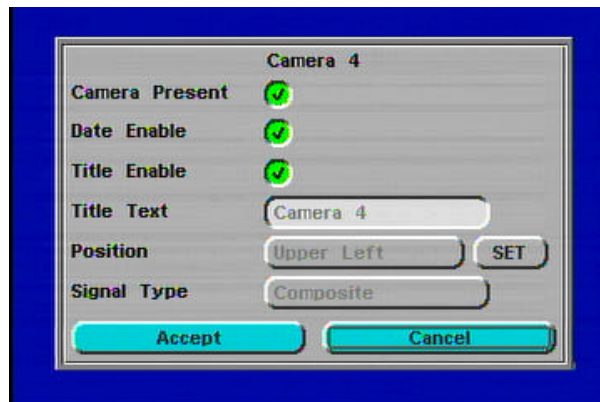
Set the Inactivity Timer to any non-zero time and the Inactivity Action mode will start after the time has elapsed. If you set the Inactivity Timer to zero the switcher will be disabled (leaving the unit displaying the last selected view).

Video In

The Video In function allows you to control the date/time and title that are recorded with the video for each camera.



Select a camera button and press enter.



For each camera you must indicate whether or not the camera is present by clicking a check mark in the box at the top of the screen. You can choose to have the date and time displayed, or to turn it off.

WARNING: If the date and time are not displayed, they will not appear on the recorded video.

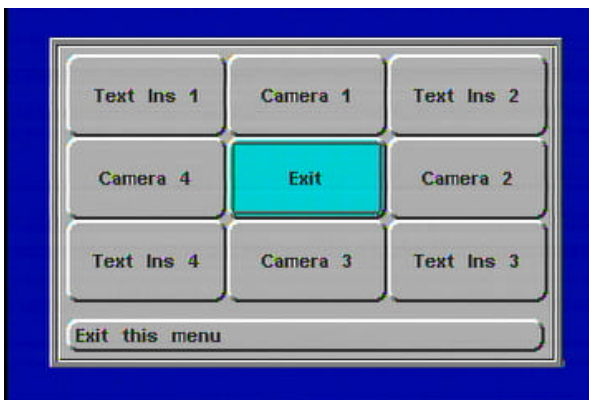
You can choose to enable the camera title display. If you enable the title you can change the camera title text. Highlight the Title box and press enter. You can move through the letters in the title using the right and left cursor control keys. You can change each letter using the up and down cursor control keys.

or the jog knob. You can also use Camera button 1 to insert or append a letter, Camera button 2 to delete a letter, and Camera button 3 to use the Text Entry screen. When you are satisfied with your title press enter so that you can move to another area of the screen.

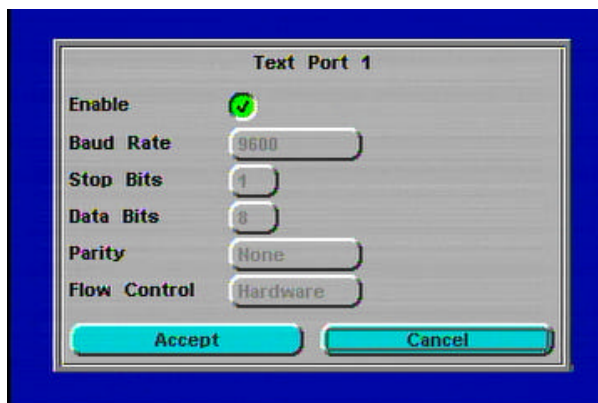
You can set the position that the title and time will be displayed on the screen. The positions available are upper left, lower left, split Date/Title (time at the top of the screen and title at the bottom of the screen) or split Title/Date (title at the top of the screen and time at the bottom of the screen). Press the SET button to make fine adjustments in the position. You must also specify the signal type of the camera you are using (Composite or S-Video).

Text In

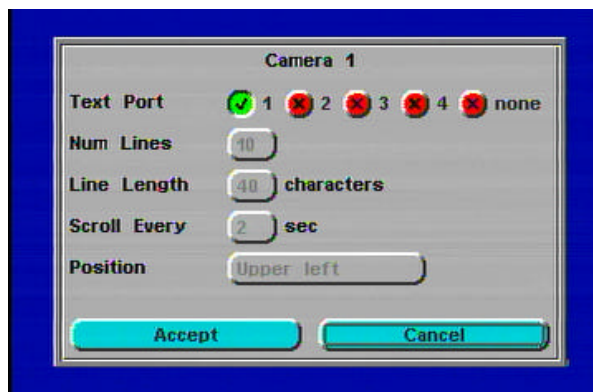
The DVMS 400 has 4 Text Insertion ports located on the back of the unit. For each port you will need to enter in the technical data associated with the input device being used. Each camera can record the text input from any one port.



Each Text Insertion port has its own button which opens a Text Port screen. Before information will be accepted from the port you must enable the port by checking the Enable box at the top of the Text Port screen. You will also have to enter the baud rate, stop bits, data bits, parity and flow control according to the information supplied with the input device you are using.

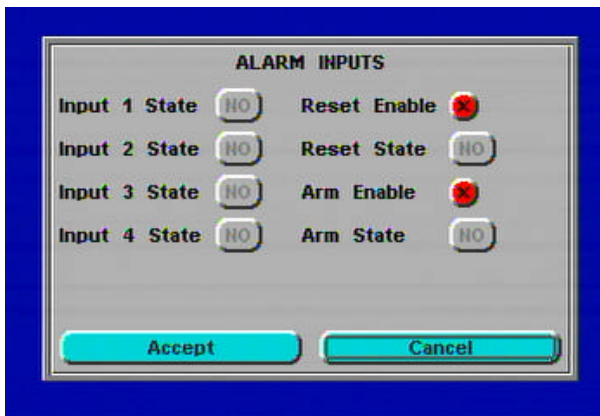


Each camera also has its own button which displays a Camera screen. For each camera you may accept text input from any one of the text ports or from none of them. You can specify the number of lines that will be displayed on the screen at once (to a maximum of 10 lines), the line length (20 to 40 characters), and how quickly the lines will scroll by (1 to 10 seconds) if no new text information is entered. (While text is being entered it will scroll by at the same rate as it is being entered.) You may also set the position that the text will be displayed on the screen.



Alarm Inputs

The DVMS 400 has 4 hardwired Alarm inputs, an Alarm Reset and an Arm Alarm input on the rear of the unit. If you plan to use these inputs you will need to specify whether each contact is normally open (NO) or normally closed (NC).



You will also need to set whether or not to enable the Reset and Arm inputs. If you enable the Arm Inputs you must use the Arming Setup function to select which events will be armed using this switch. See page 45 for details.

Time-Lapse Recording

There are a number of time-lapse recording options that can be accessed from the Time-Lapse Recording function. You may choose to record your video using fields or frames. (Each field is a record of every second horizontal line of video, first the odd lines and then the even lines, and each frame is a record of all the horizontal lines of video and is made up of 2 fields.) You may choose whether to turn on or off the audio recording. When you have filled your disk with video you may choose to Stop recording or to Recycle (start at the beginning again). When the disk is full you may choose to have the DVMS 400 beep or to send a signal to the Alarm Output.



For each camera you must specify the rate to be used for regular time lapse recording and the compression ratio. The rate will be shown as the number of frames per second or the number of fields per second (frame or field according to whether you entered Frame or Field in the Recording box at the top of the screen). The total number of fields that can be recorded each second by all 4 cameras cannot add up to more than 60 fields per second for NTSC or 50 fields per second for PAL. The Compression Ratio can be 10:1, 15:1, 20:1, 25:1, 30:1 or 35:1. The number shown is the first half of this ratio.

The status box in the upper right hand corner of the screen shows the total amount of drive space available and the amount of video that could be recorded using your current settings. If you reduce the Record Rate or increase the Compression you will be able to record video for a longer time before your disk is full.

The DVMS 400 may be used as a combined Time-lapse / Event Recorder. Under normal conditions the Time-Lapse Recording settings are used. When an event is detected the time-lapse recording stops and the Event Recording settings are used instead. For example, if a Motion event is detected on Camera 4 the Time-Lapse recording will stop **on all cameras** and the settings you entered into the Motion Event function for Camera 4 will be used for all cameras.

NOTE: COMBINED TIME LAPSE / EVENT RECORDER

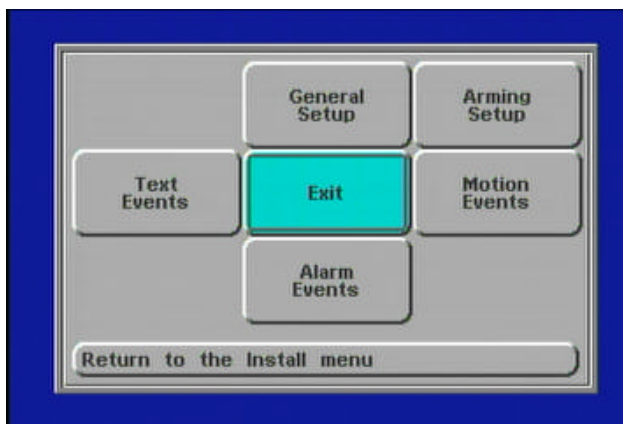
If you use your DVMS 400 as a combined Time-Lapse / Event Recorder the Event Recording settings will override the Time-Lapse settings when an event is detected.

If you would like your DVMS 400 to act as an Event Recorder, only recording video when a Text Event, Alarm Event, or Motion Event is detected, Use the Pre-Event Recording function. (See page 53.)

When the Pre-Event function is enabled the Time-Lapse recording function is disabled and the Time-Lapse Recording button on the Install menu will be grayed out.

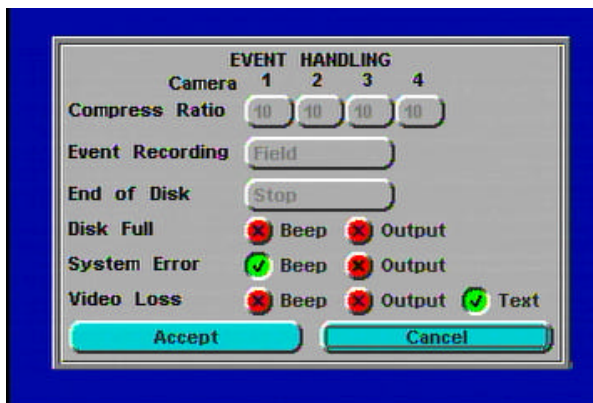
Event Recording

The DVMS 400 can detect a number of different kinds of events, and may be set up to handle each type separately. Events may be detected from the Alarm Inputs, the Text Inputs or the Motion detection function. Each of these types of events can be given their own event recording values. When the disk is full, a system error occurs, or a video signal is lost the operator can be alerted to their occurrence.



General Setup

There are some conditions that are common to all event records. These may be set by using the General Setup button to open the Event Handling screen.

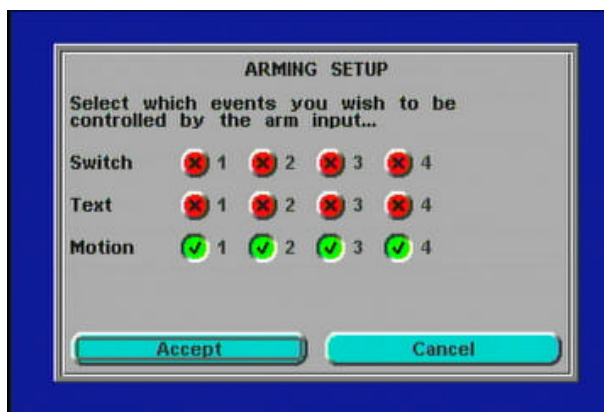


The common recording conditions include the compression ratio, whether to record frames or fields, and what action to take when the disk is full. These values are set the same way as they are for the Time-Lapse Recording function, page 42.

Three additional event conditions are shown at the bottom of this window, to allow you to set an action when a Disk Full, System Error or Video Loss (when video signal is lost from an enabled camera) condition is detected. You can choose to have the DVMS 400 beep or to trigger the Alarm Output contact when these events are detected. If a video signal is lost when the Video Loss “Text” option is checked, the screen will turn red and “Video Loss! Camera 1” (or Camera 2, 3, or 4) will be displayed.

Arming Setup

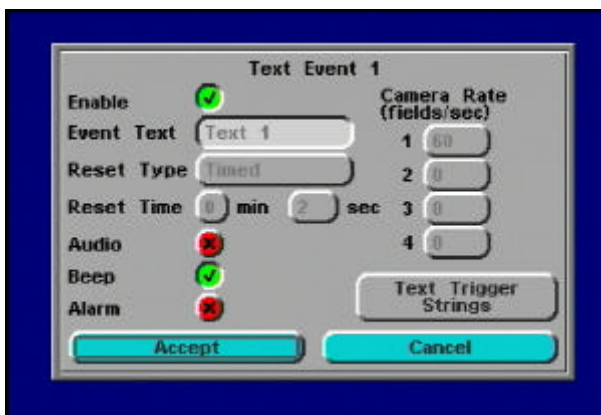
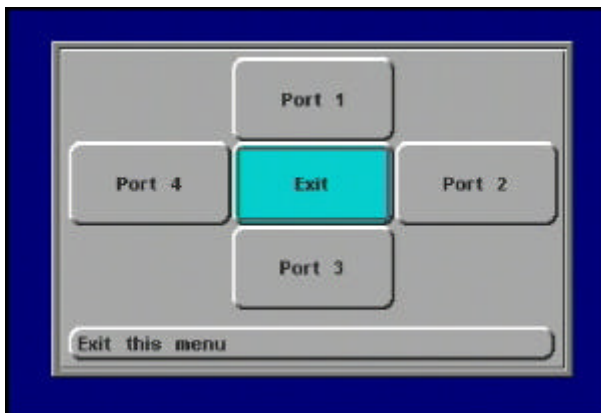
The Arming Setup screen allows you to choose the events you wish to be controlled by the Arm Alarm input on the back of the DVMS 400.



Check each event that you wish to be controlled by the Arm Alarm input. Events which are checked are triggered when the appropriate condition is met **and** the Arm Alarm input is “on”. If you want to use this feature you must also enable the Arm Alarm input in the Alarm Inputs menu (page 41).

Text Events

When you press the Text Events button you will be able select a Port button to set the event conditions for the text detected via that individual Text Insertion Port. Note that you must set up the Text Insertion Ports using the Text In function before you can detect a Text Event. (See page 40.)



Each Text Insertion port can be Enabled or Disabled. Each event can be assigned its own Event Text (a title). This text will be used when you are creating a Report (see page 24) or Reviewing Events (see page 30). Text Events can be reset using one of three Reset Types: Auto (automatically reset immediately after the event), Manual (only reset when the external Alarm Reset contact is tripped), or Timed (reset after the time specified in the Reset Time boxes). If a Timed reset is used, the Reset Time must be specified. You can choose whether or not to record the audio input, whether the DVMS 400 should beep, and whether the Alarm Output contact should be triggered (to activate any device you have connected to the alarm output contact such as an external light, bell, etc.).

For each event you will need to specify the number of frames (or fields) per second that should be recorded by each camera. Note that the total number of fields per second that can be recorded by all 4 cameras cannot add up to more than 60 fields per second for NTSC or 50 fields per second for PAL. If you

assign a rate of 0 fields per second, that camera will not be recorded for the event. If you want to set all 4 camera to record for a single event each camera cannot be set to record more than 15 fields per second for NTSC or 12.5 fields per second for PAL. If you want 2 cameras to record the maximum number of fields allowed for a single event each camera cannot be set to record more than 30 fields per second for NTSC and 25 fields per second for PAL, and they must be set to be recorded by camera 1 and 2.

Pressing the “Text Trigger Strings” button opens a screen that lets you set the text that will be used to determine if a text event has occurred.

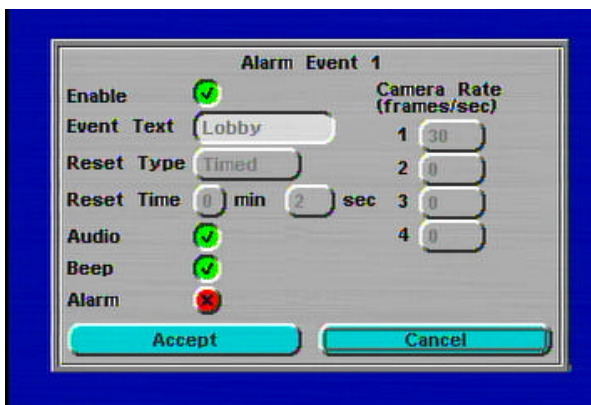
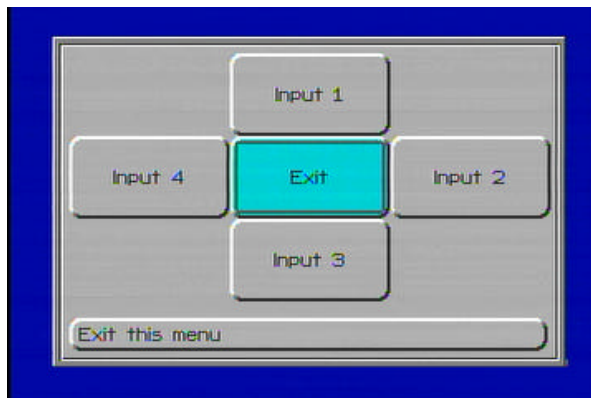


If you enable “Trigger All” a text event will be recorded when **any text string** is detected. If “Trigger All” is disabled a text event will be triggered each time the text string matches any of the 5 text conditions. You can change these text conditions by moving to the condition, pressing enter, and using the cursor control keys, jog knob and camera keys to change the text.

You can also specify whether or not the text should be case sensitive. If it is case sensitive an upper case letter will be considered different from a lower case letter. When you are satisfied with your conditions highlight “Accept” and press enter.

Alarm Events

The DVMS 400 has 4 hardwired alarm inputs on the back of the unit. For each input that is being used you will need to tell the system how you would like to handle events for each input. Note that you must setup the alarm inputs using the Alarm Inputs function before you can detect an Alarm Event. (See page 41.) Highlight the Input that you want to set up and press enter.



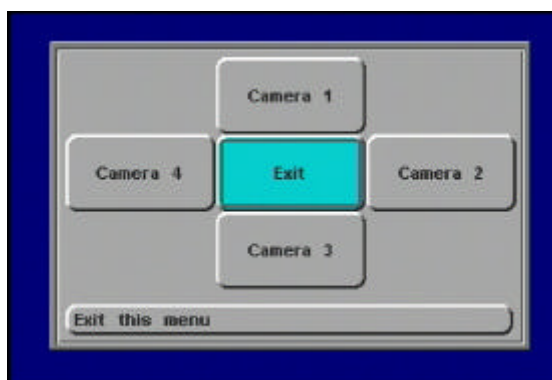
Each Input can be Enabled or Disabled. Each event can be assigned its own Event Text (a title). This text will be used when you are creating a Report (see page 24) or Reviewing Events (see page 30). Alarm inputs can be reset using one of three Reset Types: Auto (automatically reset immediately after the alarm event), Manual (only reset when the external Alarm Reset contact is triggered), or Timed (reset after the time specified in the Reset Time boxes). If a Timed reset is used the Reset Time must be specified. You can choose whether or not to record the audio input, whether the DVMS 400 should beep, and whether the Alarm Output contact should be triggered (to activate an external light, bell, etc.).

For each event you will need to specify the number of frames (or fields) per second that should be recorded by each camera. Note that the total number of fields per second that can be recorded by all 4 cameras cannot add up to more than 60 fields per second for NTSC or 50 fields per second for PAL. If you assign a rate of 0 fields per second, that camera will not be recorded for the

event. If you want to set all 4 camera to record for a single event each camera cannot be set to record more than 15 fields per second for NTSC or 12.5 fields per second for PAL. If you want 2 cameras to record the maximum number of fields allowed for a single event each camera cannot be set to record more than 30 fields per second for NTSC and 25 fields per second for PAL, and they must be set to be recorded by camera 1 and 2.

Motion Events

Before you use motion events you need to enable them for each camera and enter some basic settings. Highlight the button for the camera that you want to set up and press enter.



Each Motion Event can be Enabled or Disabled. Each event can be assigned its own Event Text (a title). This text will be used when you are creating a Report (see page 24) or Reviewing Events (see page 30). Events can be reset using one of three Reset Types: Auto (automatically reset immediately after

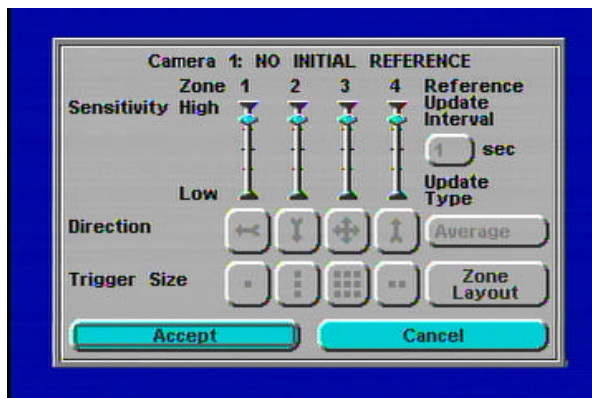
the event), Manual (only reset when the external Alarm Reset contact is tripped), or Timed (reset after the time specified in the Reset Time box). If a Timed reset is used the Reset Time must be specified. You can choose whether or not to record the audio input, whether the DVMS 400 should beep, and whether the Alarm Output contact should be triggered (to activate an external light, bell, etc.).

For each event you will need to specify the number of frames (or fields) per second that should be recorded by each camera. Note that the total number of fields per second that can be recorded by all 4 cameras cannot add up to more than 60 fields per second for NTSC or 50 fields per second for PAL. If you assign a rate of 0 fields per second, that camera will not be recorded for the event. If you want to set all 4 camera to record for a single event each camera cannot be set to record more than 15 fields per second for NTSC or 12.5 fields per second for PAL. If you want 2 cameras to record the maximum number of fields allowed for a single event each camera cannot be set to record more than 30 fields per second for NTSC and 25 fields per second for PAL, and they must be set to be recorded by camera 1 and 2.

When a motion event clip is being recorded on one camera the three other cameras will continue to be scanned for additional motion events **only** if the recording rate is 15 fields per second (or less) per camera for NTSC or 12.5 fields per second (or less) per camera for PAL. For example, for an NTSC set up you may set Motion Event 1 to record camera 1 at 15 fields per second and cameras 2 - 4 to record at 0 fields per second. That way, even when Motion Event 1 has been triggered and is recording an event, the motion detection routines you have set up for the other cameras will still be monitoring their camera views.

If you want the Motion detection routine to detect when there is NO motion, enable the Reverse check box. This may be useful for monitoring situations where you need to be alerted when motion stops, such as factory conveyor belts.

For each camera you must use the "Motion Zone Setup" button to assign the screen areas used for motion detection. Up to 4 independent areas may be assigned.



When you use the motion detection function a reference image will be saved to provide a background picture for motion detection. This reference image will be updated at regular intervals, so that such things as gradually changing light conditions will not trigger a motion detection alarm. You will need to set the Reference Update Interval in the box to the right of the screen (from 1 to 60 seconds). Under this box is the Update Type: Average or Replace. The Average mode uses the last 4 reference images and averages them to create a new reference image. This is useful for situations such as outdoor camera views with gently swaying tree branches. The Replace mode replaces the reference image completely at the reference Update Interval. This is useful for situations such as indoor cameras with normally static surroundings.

You may also set the Reference Update Interval to 0. If you use this setting the Reference Image will not be updated. This may be appropriate in a static indoor setup with constant lighting.

Each zone may be assigned its own sensitivity using the sliders. Each zone may be assigned a direction for the motion. Each zone can also be assigned a trigger size. The trigger size buttons show the number and the arrangement of zone squares that must be active for a motion alarm to be triggered. To set the area used to define each zone highlight the Zone Layout button and press enter. This will take you to the Zone screen.



The Zone screen divides the screen into small squares. Use the cursor buttons to move to the first square you want to assign to zone 1. Use camera button number 1 to assign the square you are on to zone 1. Use the cursor control buttons to move to any additional squares you want to assign to zone 1 and press camera button 1. You will see zone 1 represented by the squares with the number 1. If you want to remove a square from zone 1 move to the square and press Camera button 1 again to remove the number 1. Similarly use camera buttons 2, 3 and 4 to assign zones 2, 3 and 4. Each zone may have as many or as few squares included as you wish. To fill the whole screen with the same zone assignment, press and hold the camera number button for that zone and the Help button. You may press the Help button on the front panel of the unit to clear all your current zone settings.

Note that the zone numbers turn red and a beep will sound when motion is detected as defined by your Direction, and Trigger size settings. This will help you to make the correct settings when you are setting up your zones. You may toggle on/off the beep while setting up the zones by pressing the Play button on the front panel of the unit.

Once you are satisfied with your zone assignments you may press the Record button on the front panel to record an initial reference view to use with the motion detection function (you will hear 3 short beeps). Make sure nothing is moving on screen when you set your reference view. If you previously set an initial reference view and you would like to clear it, press the Setup button on the front panel (you will hear 3 short beeps). If you do not set an initial reference view, one will be created for each camera that has motion detection enabled when you start Recording (after you have exited the Setup program). If you choose to use the motion detection without setting an initial reference view you will need to make sure that there is no motion in your camera view (or views) when you start Recording.

While motion detection can be an extremely effective tool, it should be set up with consideration and care to prevent unnecessary alarms. Moving shadows, sunlight through windows, the moving second hand of a ticking clock, etc. can cause unexpected and unwanted alarms if they are not considered during the setup phase.

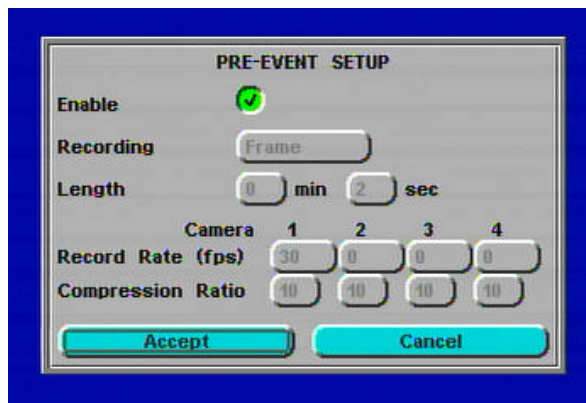
We recommend that any motion detection setup be evaluated for an extended period of time (24 - 48 hours) to fine tune settings and verify desired operation. The on-board motion detection is well suited to indoor applications. Outdoor applications are susceptible to the vagaries of nature, making it more difficult to anticipate all situations. Prior to final outdoor use extensive testing under a variety of conditions is recommended.

Warning: If the sensitivity is high and the trigger size is one square, the on-screen time and date display can cause unwanted events as the numbers change during routine operation. However, any text displayed from the Text Insertion Ports will not trigger a motion event.

The motion detection function is very responsive, with both accurate and quick detection of motion. However, the more cameras that use motion detection at the same time the slower the detection processing speed will be. If multiple cameras will be using motion detection simultaneously, we recommend that each camera's motion detection be reviewed individually during various activity periods to verify that the motion detection is performing at the desired response level.

Pre-Event Recording

The pre-event mode allows you to use your DVMS 400 as an event recorder. If you enable this mode the DVMS 400 will record data in a loop, saving data for the time you specify in the Length box (from 2 seconds to 59 minutes, 59 seconds). If an Alarm event, Text event or Motion event is detected the video recorded before the event will not be over-written, but will be saved along with the video recorded during the event. Once the event is reset (depending on the individual event reset types you have set) the DVMS 400 will go back to recording video data in a loop.



The recording rate and compression ratio used for this mode are set at the bottom of the screen as they are for the Time Lapse Recording function (see page 42). Note that you cannot record audio with your Pre-Event video clips. Audio can only be recorded with Time-Lapse clips and with Alarm, Text and Motion Event clips.

When the Pre-Event Recording function is enabled the Time-Lapse Recording function will be disabled and the Time-Lapse Recording button on the Install menu will be grayed out.

Setup Functions: A Reference Map

SETUP – MAIN MENU FUNCTIONS

Change Password: Enter new password and confirm
Set User Name and Access Permissions

Calendar:

- Enable, select day of week, Holiday, Normal/Alternate
- Set times for each day
- Set times for Holidays
- Normal/Alternate set up
- Event Mask for Normal/Alternate

Clock Set: Set time and date

Disk:

- Select Disk Status, Disk 0 – 6
- Disk Setup: Event disk space; Archive and Hot Swap drives

Reports:

- Report list: Select or create a report
 - Create a report
 - Text Criteria
 - Event Criteria
 - Edit: Edit an existing report
 - Delete: Remove a report
 - Execute: Run a report
 - Review Events: The list generated by executing a report

Review Events:

- Review Events: A list of all the event video clips

VCR Setup (Optional): VCR Setup

Exit: Leave the setup program

Install: Show the Install functions

SETUP - INSTALL MENU FUNCTIONS

Service:

Default Settings: Reset to factory defaults
 System Log: One line reports of system status
 System Info: Version, serial number, memory available, VCR control
 Remote Access: Set up for use with a modem, null modem or ethernet
 User Preferences: Set up for clip order, Unit ID, set up for language
 Download Software: Upgrade the DVMS 400 software

Switcher: Set the idle viewing mode

Video In:

Camera 1 – 4: Select which camera you are setting
 Camera 1 – 4 setup: Set the camera title and title/time display

Text In:

Text In 1 – 4 and Camera 1 - 4
 Text Port 1 – 4: Set the parity, baud rate, etc.
 Camera 1 – 4: Select the text port and appearance of text on screen

Alarm Inputs: Hardware settings for the hardwired alarm inputs

Time-Lapse Recording: Set time-lapse recording rates, compression, etc.

Event Recording:

General Setup: Common settings plus System Failure, Video loss,
 Alarm Memory handling

Text Events:

Ports 1 – 4: Select the text input port
 Text Event 1 – 4: Set recording conditions
 Text Trigger Strings: Enter trigger text strings

Alarm Events:

Input 1 – 4: Select the hardwired input port
 Alarm Event 1 – 4: Set how each alarm will be handled

Motion Events:

Camera 1 – 4: Select the camera
 Motion Event 1 – 4: Turn on/off, basic settings
 Motion Zone Setup: target size, sensitivity
 Zone Layout: map the zone areas

Arming Setup: Select events armed by the Arm Alarm switch

Pre-Event Recording: On/off, recording rates, compression, etc.

Exit: Return to the main Setup screen

CHAPTER 2: OPERATION

Overview

Once your system has been set up you will be ready for day to day operation. This chapter includes information on all of the operations that may be performed by a user who does not have Administrative Access. These operations include live monitoring, starting and stopping recording, handling events, playing recorded video clips and searching for recorded video clips.

Live Monitoring

The DVMS 400 has a video output and an audio output. By hooking up a video monitor and an amplified speaker to these outputs the signals from your cameras and microphone can be monitored live. You can use the buttons on the front panel to manually select a single camera or quad mode. In quad mode the input from all four cameras are shown on the screen at once. If a camera is not enabled that camera's quadrant will remain black.

The DVMS 400 has three idle viewing modes which can be selected using the Switcher in the Setup program: View Free (blank the screen), Quad (stay in quad display), and Sequence. In the sequential mode all active cameras are shown in numerical order, with an independently selectable dwell time for each camera of 0 to 60 seconds. (See Switcher, page 38.)

The date and the title of each camera can be displayed on top of the image or the image can be displayed without a camera title. (See Video In, page 39.) The Setup program can also be used to select how fast text from the Text Insertion Ports scrolls by, and how many lines of text are displayed. Text must be displayed on the live monitor to be recorded and accessed during playback.

When you are monitoring live audio, the audio output will be the signal obtained from a microphone hooked up to the audio input. The audio level from the output will be the standard audio level put out by a consumer VCR. This level can be controlled by the volume controls of a speaker with a built in amplifier.

Recording Video: Time Lapse and Event Recording

When you press the **Rec** button on the front panel the DVMS 400 will prompt you to enter your user name and password. Once you have entered a valid user name and password it will start recording according to the values entered in the Setup program, and the green light beside the **Rec** button will be lit. During Time-Lapse recording the green light will remain on. During Event Recording the green light will flash.

Time-Lapse recording and Event recording settings are independent. For example, when an event triggers an event recording the system may be set to record at a higher frame rate and/or at a lower compression rate. An event may be programmed to reset automatically or it may be programmed to reset only when the operator activates the Alarm Reset input. Once the event is reset the normal Time-Lapse recording mode or Pre-Event recording mode will start again. (See Time-Lapse Recording, page 42, Event Recording, page 44, and Pre-Event Recording, page 53.)

During setup there are two different modes that tell the DVMS 400 what to do when the recording space on the disk is full. One mode is “Recycle”, which is similar to re-wind and re-record for tapes. In this mode the operator will not be warned when old data is being overwritten by new data. The second mode is “Stop”, which simply stops the recording. For the Stop mode the operator will be warned that the system needs to overwrite old data to continue recording by showing a blue screen with a text message on the video monitor. You may then use the cursor controls to signal the unit to re-record over old data, or to stop recording to allow you time to archive some of the data to another storage device before the data is lost.

Event Handling

Any event will cause the DVMS 400 to enter its event mode. The DVMS 400 will automatically detect if the disk is full, a system error, the loss of video signal from any enabled camera, and Text, Motion and Alarm events as defined in the Event Recording part of the Setup program. (See page 44.) It also has a Pre-Event function to operate the unit as an event recorder. (See page 53.) When an event is triggered the event recording or event action specified in the setup program will be started. For example, a motion event may cause the camera that detected the motion to be recorded at a high speed and low compression. Or, for example, if a camera's video signal is lost, the event may trigger a beeping noise or a text output to the screen.

There are three event reset types which determine how events are cleared. In **manual mode**, the event is active until the external Alarm Reset contact is activated. In **automatic mode** the event is reset as soon as the input signal returns to inactive. In **timed mode**, the alarm is active for the interval set in the Setup program. After the event timer expires the event will be considered reset even if the event is still active. The triggering signal must be de-activated before another timed mode alarm event can be recognized. For example, if a door opening triggers an alarm event that lasts for 30 seconds the event mode will be turned off after 30 seconds even if the door is still open. A timed alarm event can not be triggered again until the door is closed.

Text, Alarm and Motion events can cause an event video clip to be recorded. An event video clip records the starting time and date of the event, the type of event, and the video images that were recorded during the event. If the video camera title was being displayed and/or a Text Insertion port was set to display text when the video clip was recorded, that text will also be recorded along with the event video clip.

During video clip recording the DVMS 400 can record up to 60 fields per second for NTSC or 50 fields per second for PAL. Normally you will set up each event so that the maximum recording rate will not be exceeded during a single type of event. However, there could be times when multiple events occur at the same time, and in that case the DVMS 400 may be sent a recording request which would cause the maximum recording rate to be exceeded. As events occur each event is placed in a queue and recorded at the rate set for it in the Setup program. As the maximum number of fields per second is neared each additional event which will cause the maximum recording rate to be exceeded will cause the DVMS 400 to drop the rate at which all currently active events are being recorded. This allows all active events to be recorded, even if they are forced to record at a slightly lower recording rate.

For example, if you are using a PAL system and a Text Event is detected that causes camera 1 to be recorded at 25 fields per second and then an Alarm Input causes camera 2 to be recorded at 25 fields per second and then a Motion Event is triggered that would normally cause camera 3 to be recorded at 20 fields per second (exceeding the PAL maximum recording rate of 50 fields per second), the DVMS 400 will drop the recording rate of the first two events to 12.5 fields per second and will start recording the third event at 12.5 fields per second. If further events occurred, all currently active events would have their recording rate dropped (as needed) so that there would be some recording capacity available for the additional events.

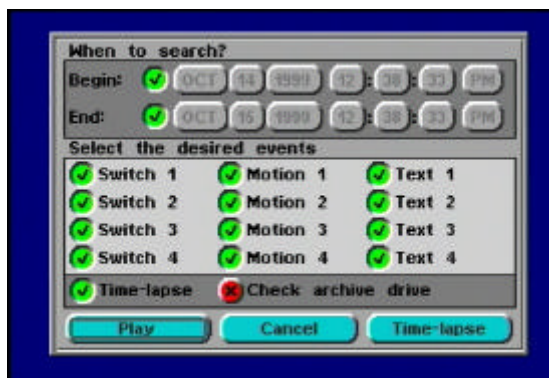
Playing Video Clips

When you press the **Play** button on the front panel the DVMS 400 will prompt you for a user name and password. Once you have entered a valid user name and password the Play screen will be shown. During playback mode no recording will be possible and events will not be reported. (Note: You can use the Remote Access Software to playback clips on your computer and to continue recording at the same time. See Chapter 4 for details.)

There are two Play screens available: Normal and Simple. You may select which screen you want to use in the User Preferences section of the Setup program (see page 37).

Normal Play Screen

The Normal Play screen allows you to set the criteria used to generate a video clip list by searching all of the previously recorded video clips.



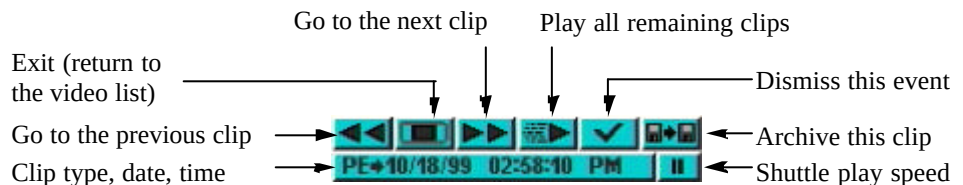
You may select all of the clips between a Beginning date and time and/or an Ending date and time. If these boxes are not checked, the date and time will be ignored when creating a list of clips to be played. You may select which types of events you want to have included in your play list by enabling the events' check boxes. You may include Time-lapse clips. You may check the **archive drive only** by enabling that check box.

Once you have selected the type of clips to play back highlight the Play button and press enter. You will be asked "Do you wish to see dismissed events as well?" You may choose yes or no. (You may dismiss events without deleting

them when you are playing them.) A list will be displayed that shows all of the video clips that match your selection criteria.



To play back a video clip scroll to an item on the list and press enter. The video will be played back on your monitor. An on-screen control panel will be displayed while you are playing recorded video. This is the same as the control panel that is displayed when you are Executing a Report (see page 28) or Reviewing Events. Note the check mark button used to dismiss an event will only be shown if your list does not include Time-lapse video clips.



The bottom of the On-screen control panel shows the event type before the date and time display. The following is a list of abbreviations or codes for the clip type being shown.

Code	Clip Type
TL	Time-Lapse
M1 -M4	Motion event
S1 - S4	Switch event (Alarm)
T1 - T4	Text event
PE	Pre-event
MU	Multiple alarms

The Play Control panel moves from upper-left, to upper-right, to lower right, to lower-left, to off screen when the Up cursor control is pressed. It moves in reverse order when the Down cursor control is pressed. When the control panel is not visible, press either the Up or Down cursor button to make it appear. To use any of the on-screen control panel buttons, use the left or right cursor controls to highlight the button and press Enter.

Note: To display text recorded with a video clip (from a Text Insertion Port) press the Play button on the front of the Watson unit. The text will be displayed in front of the video image. To hide the text press the Play button again. The text will be hidden. (This does not apply to the time and date text, just the Text Insertion text.)

Initially the clip will be played back at normal forward speed (real-time speed). You may playback the video images in forward or reverse, and at speeds varying from freeze-frame to real time (up to 60 fields per second). The knob on the far right of the front panel has an outer ring (the shuttle control) which determines the forward and reverse speed: the further you turn the knob the faster the playback will be displayed. It also has an inner knob (the jog control) that can be used to move the display one frame or field at a time. Note that if you recorded audio with your clips it will only be played back when you are playing back the clip at the real-time speed.

Normal Play Screen: Time-lapse

At the bottom of the Normal Play screen is a Time-lapse button. This button can be used to start play back from an exact date and time in a single time-lapse clip. This function can be helpful when you are trying to locate a particular section of a long time-lapse clip.

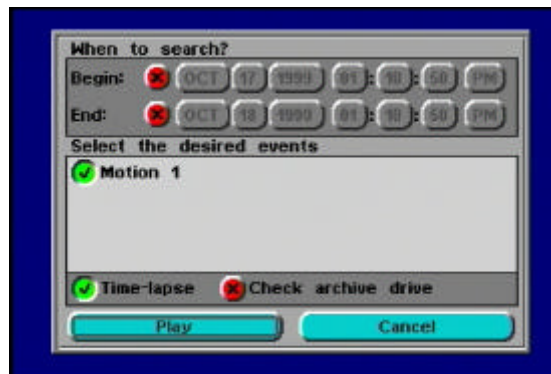


Enter the date and time for playback to start. The date and time you specify must match a date and time recorded during a time-lapse clip. To help you determine which dates and times were recorded, the beginning and ending times for recorded time-lapse video clips are shown at the bottom of the screen.

Select which camera's time-lapse clips you would like to view, whether or not to display any text that was recorded along with the video (from the Text Insertion Ports) and whether or not to play any audio that was recorded along with the video. Once you have made your selections highlight the Play button and press enter. The time-lapse clip that matches your criteria will be played. A simple version of the on-screen control panel will be displayed which will allow you to return to the Normal Play screen or to archive the clip. (There are no "next clip" or "previous clip" buttons displayed when using this function.)

Simple Play Screen

The Simple Play screen is similar to the Normal Play screen. This screen also allows you to set the criteria used to generate a video clip list by searching all of the previously recorded video clips.



The Simple Play screen only displays check boxes for event types that you have currently enabled in the Setup program, and it only displays a check box for Time-Lapse if you currently are set up to record time-lapse video clips (i.e, Pre-Event recording is not enabled).

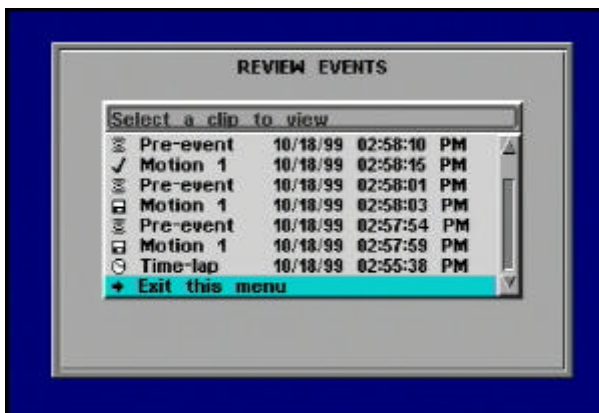
When you generate a list using the Simple Play screen dismissed events will always be shown in the video clip list with a check mark. (You will not be asked whether or not you want to display dismissed events as you are when you generate a video clip list from the Normal Play screen.)

The Simple Play screen does not have the Time-Lapse button found on the Normal Play screen.

Archiving Clips

While you are playing a clip you may use the archive button on the on-screen control panel to copy a clip from a regular drive to an archive drive for storage. You can archive a clip only if you have set up a drive for archiving (see page 20). If you begin archiving a clip and you change your mind you may press any key on the front panel to abort the archive recording.

You can also archive clips from the Review Events list of video clips. Use the cursor controls to highlight the clip you want to archive and press the Rec button on the front panel. A disk icon will appear, indicating that the clip has been selected for archiving. (If you press the Rec button again the disk icon will toggle off.) You may also press the Play button on the front panel to select **all** of the clips in the list for archiving.

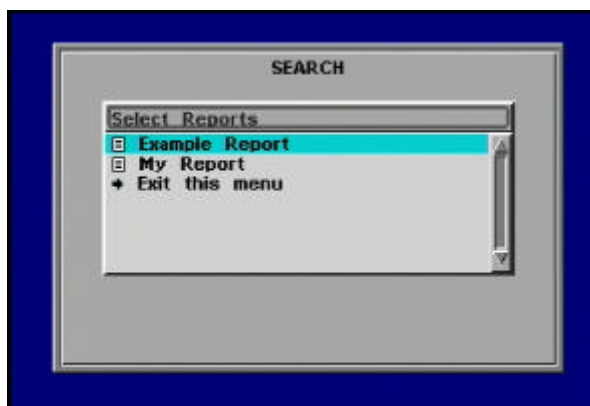


Once you have selected the clips you want to archive, press the Setup button on the front panel. A message will appear: "This will archive all selected clips. OK/Cancel" Press OK to start copying the selected clips. While copying a status window will keep you informed of the progress. You may abort the process by pressing any key. Note that archived clips are not removed from the regular drives, they are just copied.

Searching for Video Clips

One of the advantages of a digital video system is the ability to search the recorded video based on a specific criteria and to quickly play the video that matches this criteria. This allows you to move quickly and accurately from one section of video to another.

To start a search press the **Search** button on the front panel. The DVMS 400 will prompt you for a user name and password. Once you have entered a valid user name and password the Search Report selection screen will be shown. This will show you the list of **Reports** which you created using the Setup function (see page 24). Each report will search your video clips based on the criteria that you set when you created the report.



Highlight the report you want to use and press enter. You will be asked “Do you wish to see dismissed events as well?” You may choose yes or no. (You may dismiss events without deleting them when you are viewing them using the Review Events function in the Setup program.) A search will be performed and any video matching the conditions defined in the report will be displayed in a “Review Events” list on the monitor.

To play back a video clip scroll to an item on the video list and press enter. The video will be played back on your monitor. An on-screen control panel will be displayed while you are playing recorded video. This is the same as the control panel that is displayed when you are playing back clips or reviewing reports. (See the previous section.)

Recording to Video Tape

There may be times when you want to record the DVMS 400's video clips to video tape, either for archival purposes or to give to a client to view on a consumer VCR. If you have the optional VCR Control output (and infra red control cable) your DVMS 400 will be able to control a VCR for scheduled video clip Report recording to video tape. The Setup program includes a VCR Setup function to allow you to setup for this type of video tape recording (see page 31).

If you do not have the optional VCR Control output you will still be able to record to video tape manually. To do this you will need to hookup the video and audio output of the DVMS 400 to the video and audio input of your VCR. To monitor the signal you will need to hook up the video and audio output of your VCR to your video monitor and speaker. When you play back a video clip from your DVMS 400 you should see the video and hear the audio on the monitor and speaker hooked up to your VCR. When you press record on your VCR whatever is showing on your video monitor will be recorded to your video tape.

Note that many VCRs require you to press a button to switch between the VCR video/audio inputs and the antenna input. Please see your VCR manual.

If you want to record a specific video clip you can use the Play function or the Search function to help you to locate the specific clip you want to record. You may also record single frames, the associated text recorded with the video image, or any other data you display on the video monitor.

Printing Video Still Images

You may occasionally need to print a video image. Any composite video printer with a BNC connector may be hooked up to the DVMS 400's video output. This will allow you to print individual frames on paper.

CHAPTER 3:

SOFTWARE UPDATE UTILITY

Overview

The DVMS 400 comes with two programs that allow you to use a PC with your DVMS 400: the Software Update Utility (SUU) and the Remote Access Software (RAS). This chapter covers the SUU.

The DVMS 400's Software Update Utility program is used to download updated software from a PC to your DVMS 400 unit. To use the Software Update utility you will need to use a null modem cable to connect your DVMS 400 to a local computer. This program is simple to use and requires very little setup, but it can only perform this one function, and it only allows you to connect to your DVMS 400 to a local computer via a null modem cable.

The Remote Access Software is a more versatile tool, but to use it you must first set up a communication device on your Windows operating system which can be a time consuming process. If you only need to update the DVMS 400 software the Software Update Utility is the simplest way to do it. For more information on the Remote Access Software, see Chapter 4.

Keep in mind that the DVMS 400 will not be able to record digital video while you are downloading new software.

Software Update Utility

Installing the Software Update Utility

The Software Update Utility will run on a PC with a Windows 95, Windows 98 or Windows NT operating system. It has been provided to you on a CD. Insert the CD in your computer, use the Windows Explorer to open the SUU folder, locate the Setup.exe file and double click on it. Follow the instructions on your computer screen to install the program.

Attaching the Null Modem Cable

Before you can use the utility program you will need to connect your DVMS 400 to your PC using a serial null modem RS-232 cable. This is **not** a standard serial cable. Use the null modem cable provided with your unit. If you wish to make your own cable you may refer to Appendix B for proper pin assignment.

Connect one end of the null-modem cable to the COM1 **or** COM2 serial port on your computer. Connect the other end of the null-modem cable to **Text Insertion Port 1** on the back of your DVMS 400 unit. (**Note:** this is different from the Remote Access Software, where you connect to the EIA-232 port on the back of your DVMS 400.)

Setting Up DVMS 400

Press the **Setup** button on the front of the DVMS 400 to enter the Setup program. Select the **Install** function, then select the **Service** function and finally select the **Download Software** function. The Download Software screen must be displayed before you can use the Software Update Utility to download new software to the unit.

The New Software

In order to protect your DVMS 400's internal programming, the Software Update Utility should only be used to download software files released by Gyyr. These binary images files can be recognized by their file name. The DVMS 400 files begin with the letters "DDI", are followed by a number, and end with a "G" followed by the binary extension ".bin" (for example DDI2_00G.bin). The numbers in the file name will vary between software updates.

Save the DVMS 400 software file to a temporary folder on your computer's hard drive to speed up the downloading process.

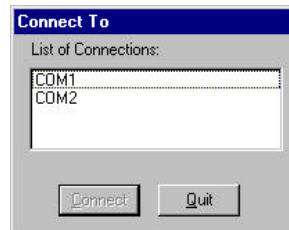
Downloading The Updated Software

To use the Software Update Utility:

1. Start the Software Update Utility program by double clicking on the **Gyyr SUU** shortcut that was placed on your desktop during installation. You may also start the utility using the Windows Start menu (in the Taskbar). Select **Start > Programs > Gyyr > Software Update Utility**.



2. Once the Software Update Utility program has started select **Action > Connect** from its main menu. If you attached the null-modem cable to the serial port labeled COM1 on your PC, select COM1 in the **Connect To** window. Select COM2 if you used the serial port labeled COM2. Click the **Connect** button to connect your PC to the DVMS 400 unit.



3. Select **File > Download File** from the main menu. In the **Open File** window, browse through your computer's directory to locate the DVMS 400 software file (DDI#_##G.bin). Double-click on the file or highlight it and click the **Open** button.

It will take a few minutes to download the new software to the DVMS 400 unit. A progress meter will be displayed to keep you informed of the progress. To cancel the download, press any button on the front panel of the DVMS 400. This will not harm the unit or its original software image.

Once the entire file has been downloaded from your computer to the DVMS 400 unit it will begin to burn the new software into the DVMS 400's flash memory. This will take a few minutes.

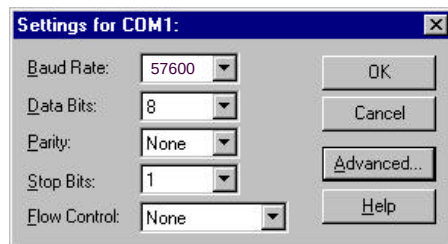
WARNING: Turning off your DVMS 400 before it has finished the burning process could damage its internal programming. Once the burn has started **do not** power down the DVMS 400 until the burn has completed.

4. Once the burn is complete the Software Update Utility program will indicate that the update was successful and will automatically terminate your computer's connection with the DVMS 400. The DVMS 400 will also display a message to tell you that the software update was successful and will tell you to "Reboot your unit to have the new software take effect". Use the DVMS 400 cursor buttons to highlight the **Reboot** button and press the Enter button. The DVMS 400 will reboot and you may then use it with the new software.

Windows Com Port Speed

If you notice that downloading the DVMS 400 software is taking a very long time (over 20 minutes) you may want to check your Windows communications port setting.

To check your port settings double click on the **My Computer** icon on your desktop, double click on the **Control Panel** icon, and double click on the **Ports** icon. This will display a list of the ports installed on your computer. Highlight the port that you are using for the SUU and click on the **Settings** button. This will open the Settings window.



Check the Baud rate. Use the drop down box to select the highest Baud Rate setting available for your computer.

CHAPTER 4: REMOTE ACCESS SOFTWARE (RAS)

Overview

If you purchased the optional Remote Access Software your DVMS 400 can be hooked up to a PC to allow you to access the unit from any location. When you use the Remote Access software you can view live video, play recorded digital video, retrieve recorded data, change settings and upload new software releases from Gyyr. In essence, everything you can do with the DVMS 400 when you are in the same room can be done on your PC from a remote location.

Playing back digital video puts very high demands on your computer system. To use the video monitoring and playback functions of the RAS your computer will have to meet the minimum computer system requirements.

Minimum Computer System Requirements

- ♦ **Processor:** Intel Pentium 166 MHz or compatible is required. An MMX processor and a faster processor speed are recommended. *Non MMX processors cannot monitor video images. However, you may still access to the setup program and start and stop video recording.*
- ♦ **Memory:** At least 32 MB of RAM
- ♦ **Disk space:** 5 MB of available system hard drive space for application files.
- ♦ **Hard disk Storage:** For downloaded video files, high quality video images require 70 KB/frame for NTSC and 83 KB/frame for PAL.
- ♦ **Display:** SVGA capable of at least 1024 x 768 x 24 bit true color. An accelerated graphics card is recommended.
- ♦ **Operating system:** Windows 95, Windows 98 or Windows NT 4.0 with service pack 4 or higher.
- ♦ **Required drive:** CD-ROM

- ♦ **Connections:** For a dial -up modem, a minimum speed of 9600 bps is required. A higher baud rate is recommended.

For a null modem connection a PC serial communications port must be available.

For a network connection an ethernet network card must be installed on the system.

Setting up the DVMS 400 Unit

Before you can use the Remote Access Software you will have to use the DVMS 400's Setup program to turn on the Remote Access function. See page 34 for more information.

You will also have to enable Remote Access for at least one User Name. User Permissions can only be changed locally, using the DVMS 400 unit's front panel. See page 12 for more information.

RAS Software Installation

To install the RAS software insert your DVMS 400 CD into your computer's CD ROM drive. Use the Windows Explorer to open the RAS folder on the CD, locate the Setup.exe file and double click on it to start the RAS Installation. Follow the instructions on your computer screen to setup the RAS software.

You will be able to start RAS by double clicking on the **Gyyr RAS** shortcut that was placed on your desktop during installation. If you followed the setup program defaults you will also be able to run the RAS by clicking **Start** on the Windows Taskbar and selecting **Programs > Gyyr > Remote Access Software**.

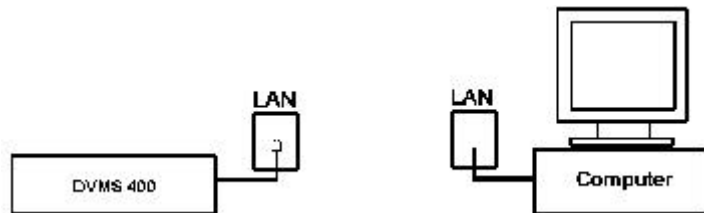
If you plan on using an ethernet connection you will be able to use the RAS software to set up an ethernet connection between your computer and your DVMS 400. See the next section for details.

If you plan on using a modem or a null modem connection you will need to install Dial-up Networking and your modem or null-modem driver. If you have not done this please refer to Appendix A. If you have already installed Dial-up Networking and your modem or null-modem driver you can use the RAS software to set up a modem connection between your computer and the DVMS 400. See the next section for details.

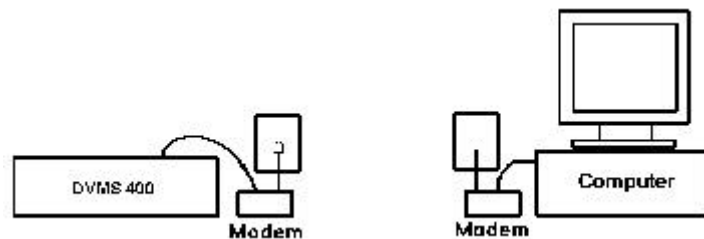
Connecting to DVMS 400

Hooking-up the Equipment

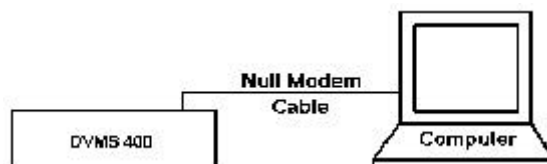
If you are using a PCMCIA **Ethernet card** to connect your DVMS 400 to a network you will need to connect your DVMS 400 and your computer to the same network. Note: When you first insert a PCMCIA Ethernet card you will need to reboot your DVMS 400 to have the unit recognize the PCMCIA card.



If you are using **dial-up modems** make sure the modems are turned on and hooked up to a phone line (at both ends). Attach an external serial modem to the EIA-232 port on your DVMS 400 unit or insert a PCMCIA modem card into the PC Card slot on your DVMS 400. Note: When you first insert a PCMCIA modem card you will need to reboot your DVMS 400 to have the unit recognize the PCMCIA card.



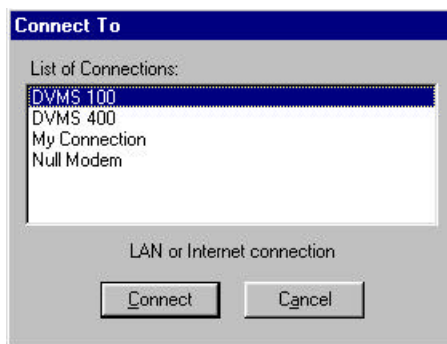
If you are using a **null modem connection** make sure you are using a null modem cable, not a serial cable. Connect the cable to the EIA-232 port on the back of your DVMS 400 and to a serial communications port on your computer.



Starting the Gyyr RAS

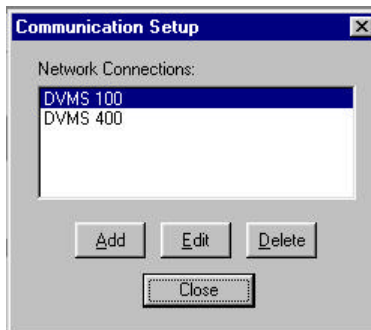
Make sure that you have enabled Remote Access on the DVMS 400 unit and for at least one of your four User IDs. (See page 12 and page 34 for more information on how to enable Remote Access.)

Start the Remote Access Software. A window will open that will ask you to select a connection from the list of connections available on your computer. If you have already created a connection select it from the list and click the Connect button. If you have not yet created a connection, or you want to create a new connection, click the Cancel button.

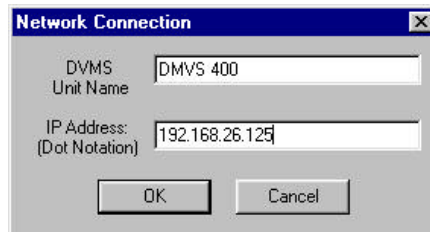


Creating an Ethernet Connection

If you will be using an Ethernet connection, and this is your first time using the RAS, you will need to start the RAS without connecting to the DVMS 400 by clicking the **Cancel** button. Select **Action > Network Connections** from the RAS main menu. This will open the Communication Setup window.



Initially your list of Network Connections will be blank. Click the **Add** button.



Enter a name to use for this network connection and the IP Address of the DVMS 400 unit. This is the **same IP Address** that you set on the DVMS 400 unit using the Setup program. (Refer to page 34.) Click OK and your new Network Connection will appear in the Communication Setup list.

To use this new connection immediately, use the RAS main menu to select **Action > Connect**. Your new Network Connection will appear in the “Connect To” list. (The next time you start the RAS software it will be displayed in the start up list as well.) Highlight the new connection and click the **Connect** button.

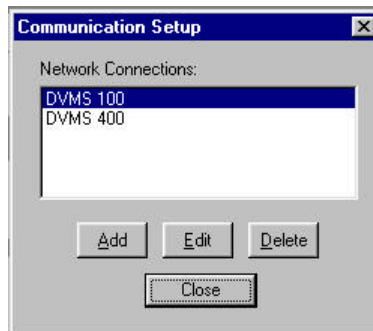
Establishing an Ethernet connection with the DVMS 400 will only take a few seconds. Once the connection is established the Login window will open.

Creating a Modem or Null Modem Connection

If you have already created a modem or null modem connection on your computer it will appear in the “Connect To” list. Note that **all** of your modem connections will appear on this list, including connections that have nothing to do with your DVMS 400, such as internet connections.

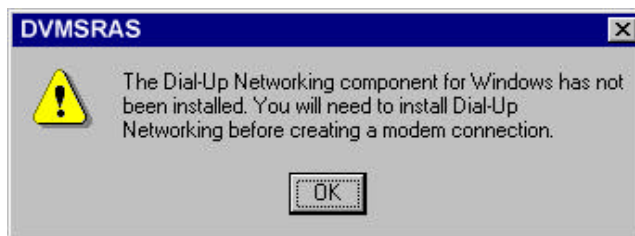
If you have already created a DVMS 400 connection you may highlight it in the list and click the **Connect** button.

If you want create a new DVMS 400 connection you will need start the RAS without connecting to the DVMS 400 by clicking the **Cancel** button. Select **Action > Modem Connections** from the RAS main menu. This will open the Communication Setup window.



Click on the Add button to create a new Modem connection.

You must have Dial-up Networking installed in your Windows operating system before you can create a Modem connection. If you do not have Dial-up Networking installed you will see a warning window.



See Appendix A for instructions on installing Dial-up Networking.

If you do have Dial-up networking installed, clicking on the Add button will open a window that will allow you create a new modem connection. You will see different windows, depending on which operating system you are using.

- ♦ If you are using Windows NT you will be able to add a New Phonebook Entry.
- ♦ If you are using Windows 95/98 you will be able to modify the Modem Properties.

Windows NT Phonebook Entry

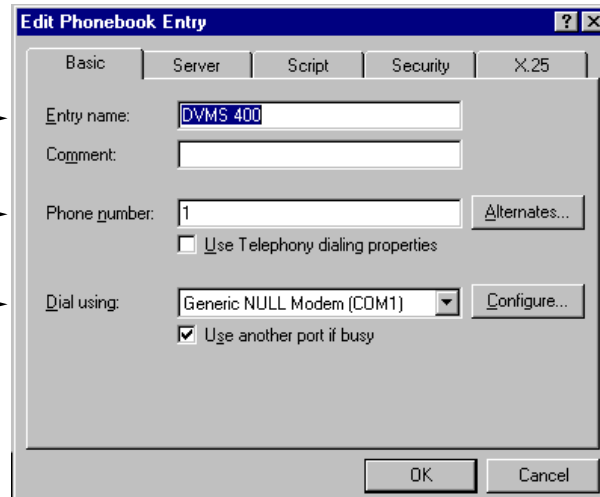
Select the **Basic** tab.

Enter the name you want to use for the connection.

Enter the phone number.
For a null modem enter “1”.

Select your modem.

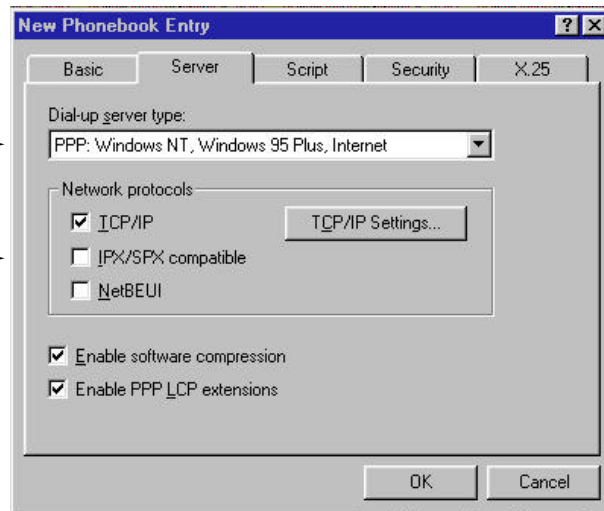
If your modem is not on the drop-down list you will have to install it before you can create your phonebook entry. Refer to Appendix A.



Select the **Server** tab.

Select “PPP” in the “Dial-up server type” drop-down box.

In the Network Protocols section you must make sure that **only the TCP/IP box is checked**. If necessary, uncheck the IPX and the NetBEUI check boxes.



Click on the **TCP/IP Settings** button.

Click the **Specify an IP Address** radio button and enter a unique IP address as shown.

The screenshot shows the 'PPP TCP/IP Settings' dialog box. It has a title bar with a question mark and a close button. Inside, there are two radio buttons: 'Server assigned IP address' (unselected) and 'Specify an IP address' (selected). Below the selected radio button is a text field labeled 'IP address:' containing the value '192 . 9 . 9 . 2'. Below this are two more radio buttons: 'Server assigned name server addresses' (unselected) and 'Specify name server addresses' (selected). Under the selected radio button are four text fields: 'Primary DNS:' (0 . 0 . 0 . 0), 'Secondary DNS:' (0 . 0 . 0 . 0), 'Primary WINS:' (0 . 0 . 0 . 0), and 'Secondary WINS:' (0 . 0 . 0 . 0). At the bottom, there are two checked checkboxes: 'Use IP header compression' and 'Use default gateway on remote network'. At the very bottom are 'OK' and 'Cancel' buttons.

Make sure the IP address you enter here is a unique number. This is your computer's modem address. It should be different from your DVMS 400's address. No other computers or DVMS 400 units on your network should use the same number. You may need to contact your network administrator for IP address information. (See page 34 for more information about your DVMS 400's IP address.) Click OK to save your settings and return to the Phonebook Entry window.

Click the Script tab and make sure the Login script selected is "None".

Click the **OK** button to create your new Phonebook Entry.

Your modem connection should now be listed in the RAS Communication Setup list. Click the Close button. To use the new connection use the RAS main menu to select **Action > Connect** and select the new connection from the "Connect To" window.

Establishing a modem connection with the DVMS 400 can take a few seconds. A null modem connection can take as long as 60 seconds to establish. Once the connection is established the Login window will pop up.

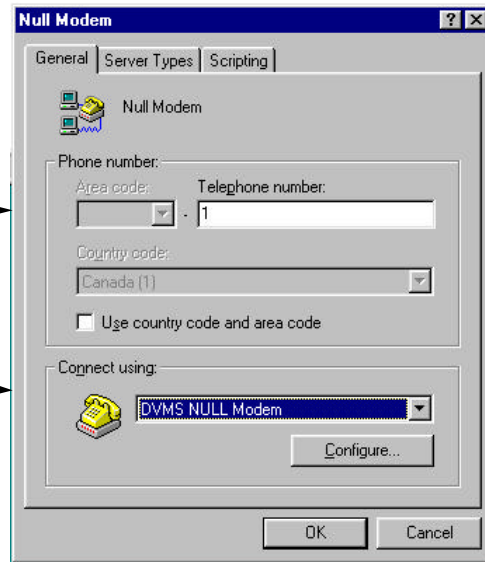
Windows 95/98 Modem Properties

Select the **General** tab.

Enter the phone number.
For a null modem enter "1".

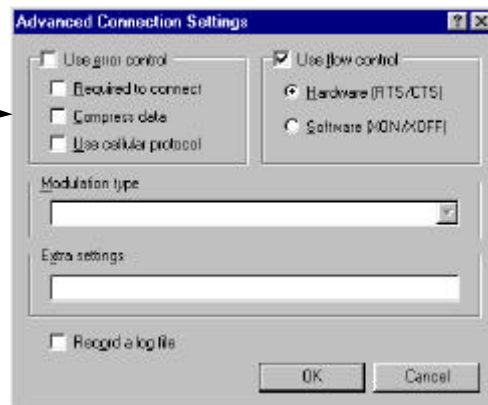
Select your modem.

If your modem is not on the
drop-down list you will have to
install it before you can create
your modem connection.
Refer to Appendix A.



Click the **Configure** button. This will open the Advanced Connection Settings window. The upper left hand side of the window is a "Use Error Control" section. For some modems this will be grayed out. If it is not grayed out make sure the "Compress Data" check box is **NOT** checked.

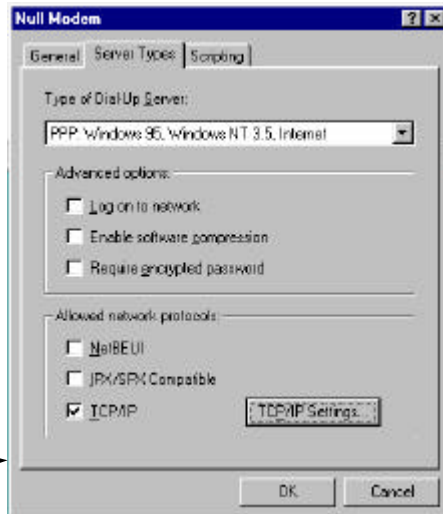
Clear the
Compress Data
check box



Click OK to return to the main modem properties window.

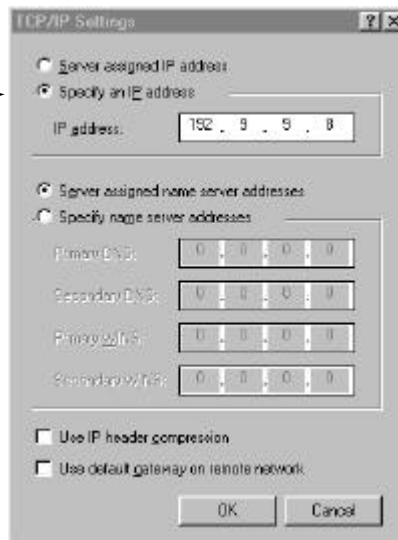
Select the **Server Types** tab. (On some systems “Server Types” is a button instead of a tab. If that is true for you click the **Server Type** button.)

You **must** clear all the checkmarks except the one in the TCP/IP box



Click the **TCP/IP Settings** button.

Click the **Specify an IP Address** radio button and enter a unique IP address as shown.



Make sure the IP address you enter here is a unique number. This is your computer's modem address. It should be different from your DVMS 400's

address. No other computers or DVMS 400 units on your network should use the same number. You may need to contact your network administrator for IP address information. (See page 34 for more information about your DVMS 400's IP address.) Click OK to save your settings and return to the Modem Properties window.

Click the Scripting tab and make sure the Login script selected is "None".

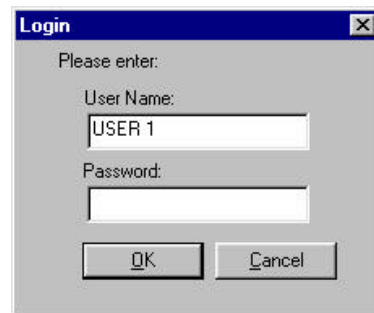
Click the **OK** button to create your new Modem Connection.

Your modem connection should now be listed in the RAS Communication Setup list. Click the Close button. To use the new connection use the RAS main menu to select **Action > Connect** and select the new connection from the "Connect To" window.

Establishing a modem connection with the DVMS 400 can take a few seconds. A null modem connection can take as long as 60 seconds to establish. Once the connection is established the Login window will open.

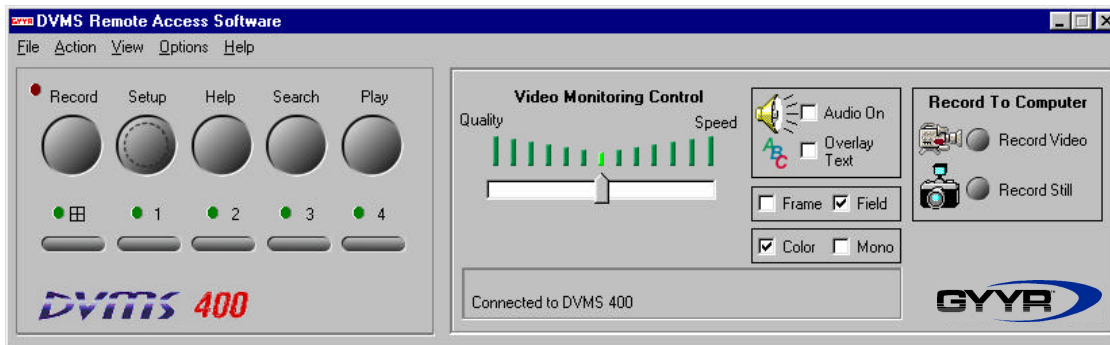
Login

Once you have established a connection with the DVMS 400 the Login window will open.



Enter one of your four DVMS 400 User Names. The default user names are USER 1, USER 2, USER 3 and USER 4 (using the 4 camera buttons on the front panel). The User Name is case sensitive. That is, you must use the same capital letters or lower case letters as the original User Name for it to be recognized. Enter in the password for the User Name. Click the **OK** button. If you entered an incorrect User Name or Password you will be given 3 chances to correct it before you are disconnected from the DVMS 400.

Once your User Name and Password have been recognized by the DVMS 400 the Login window will be closed and all the RAS buttons will be activated. The status bar found in the lower right hand side of the RAS interface will indicate the name of the unit you are connected to ("Connected to DVMS 400 1", for example).



Using Gyyr RAS without Connecting

There may be times when you want to run Gyyr RAS without connecting to a unit. Start the Remote Access Software. A window will open that will ask you to select a connection from the list of connections available on your computer. If you don't want to connect to a unit click the Cancel button.

When you run RAS without connecting to a DVMS 400 unit you will be able to use the RAS to play back video files that you previously downloaded from the DVMS 400 and to edit configuration files that you previously downloaded from the DVMS 400. If you later want to connect you can use the RAS main menu to select Action > Connect.

Monitoring Video Using RAS

Once you have established a connection between your computer and your DVMS 400 you can click on any of the camera buttons to open a Video Monitor window on your computer screen. This will show you the video from the selected camera or from the quad view on a video monitor window on your computer screen. When you are using the quad view you may double click on a quadrant to display just that camera's view.

The speed at which the video can be refreshed (or the number of images per second) is limited by the speed of your type of connection (dial-up modem, null modem or ethernet connection) and the speed of your computer's CPU.

The DVMS 400 will send out a complete image at the top speed possible for your type of connection before grabbing the next image to be sent. By choosing between the quality options vs. the speed options you can adjust the size of the video image files being sent by the DVMS 400 so that you can display a reasonable image quality and refresh rate on your computer screen.

For reference, the size of a single, high quality (10:1 compression), full frame, color video image is approximately 70 KB for NTSC and 83 KB for PAL. A single, high speed (70:1 compression), single field, mono video image is approximately 2.5 KB for NTSC and 3 KB for PAL. DVMS 400 image files include some additional information making the files slightly bigger than the image alone. Using an ethernet connection you can typically display 1 to 12 fields per second. Using a dial-up modem you can typically display 1 field per second or less.

Once the compressed image file has been received by your computer it is decompressed by your CPU and displayed on your Video Monitor window.

Video Monitoring Controls

Quality vs. Speed: This slider controls the amount of compression that is applied to the video image files before they leave the DVMS 400 unit to be transmitted to the computer. At the highest quality setting the video images will be less compressed, so they will be bigger files that will take longer to transmit, and that will lower the speed at which the video image can be refreshed. At the highest speed settings the video will be more compressed, so some details may be blurred, but the refresh speed will be higher. This slider only applies to live video monitoring, not video clip playback. When you are playing back video clip files they will be sent using the compression that was set when they were originally recorded.

Color vs. Mono: A color video image file is twice the size of a mono (black and white) video image. If you switch to a mono image the refresh speed will be higher.

Frame vs. Field: A full video image is called a frame, where each frame is made up of two fields. One field consists of all the odd horizontal lines and the other field consists of all the even horizontal lines. Thus a frame of video data is twice the size of a field of video data. When you display the video in field mode the odd field is displayed for both the odd and the even lines. This reduces the vertical resolution, but the refresh speed will be higher.

Audio On: You may monitor live audio when your Video Monitor window is open by checking this box. This will not affect your video refresh speed.

Overlay Text: You can display text from your Text Insertion ports on top of your video by checking this box. This will not affect your video refresh speed.

View > Expand/Collapse Video Monitor Controls: Use this menu item to reduce the size of the RAS window by hiding the Video Monitor controls, or to show them again if they are hidden.

View > Large/Small Video Monitor: Use this menu item to select the size of the Video Monitor window. The small window's video image takes less time to decompress than the large window's video image.

View > Overlay Text Colors: Use this menu item to change the color of any displayed overlay text (from the Text Insertion Ports).

View > Image Quality: Use this menu item to select the quality of the image decompression routine used to show video in the Video Monitor window. The speed at which an image can be decompressed is dependent on your computer's CPU speed, so select lower quality for slower computers (a 166 MHz for example) and higher quality for faster computers (a 450 MHz for example).

Options > RAS User Preferences: Use this menu item to set some default Video Monitor Settings. You may set the default video monitor window size, the overlay text color, and the image quality.

Action > Scan Cameras: When this menu item is enabled the Video Monitor window will show the video from each camera in sequence before switching to the next camera. The dwell times used are the times you set using the Setup program's Switcher function.

Status Bar: The text bar at the bottom of the Video Monitor Controls keeps you informed of the DVMS 400's status. If you are monitoring a camera while the DVMS 400 is in Event Recording mode and an event is detected, your Video Monitor may be closed by the RAS. Check the Status bar to find out which event has been triggered, and which camera is being recorded by the event.

Closing the Video Monitor Window: To close the Video Monitor window click the currently active camera button.

Recording Video Monitor Images

When the Video Monitor is open you can save the images being displayed on your computer screen to your computer's hard drive, as either a video file or as a single image file.

To save a single image file as a bmp file click on the **Record Still** button. The image that is showing on the computer's Video Monitor window will be saved. The camera icon will flash while the file is being recorded.

The image file will be saved in the Still Images Directory set in your RAS User Preferences. The default directory is a Still sub-directory in your RAS main directory. The file name will be the date and an automatically incremented number as a file name (for example, 99_10_22_1.bmp for the first image, 99_10_22_2.bmp for the second image, and so on, following the YY_MM_DD_# format). If you later want to rename the file you can do so using the Windows Explorer.

To save the images being displayed on the computer's Video Monitor window as a video file click on the **Record Video** button. The first time you click the button recording will start and the red recording indicator will flash. To stop recording click on the button again.

The Video file will be saved in the Recording Video Directory set in your RAS User Preferences. The default directory is a Video sub-directory in your RAS main directory. The file name will be the date and an automatically incremented number (for example, 99_10_22_1.dfv). If you later want to rename the file you can do so using the Windows Explorer.

To change the default directories select **Options > RAS User Preferences** from the main menu. Use the Change Directory buttons to set the directories that will be used when you Record Video that you are monitoring, Download Video that you are playing from the unit, or Record a Still Image.



Remember that digital video files are generally large files, so recording a video file for any length of time can quickly fill up your hard drive.

You cannot record the audio along with the video, even if you can hear it when you begin recording the video.

Controlling DVMS 400 with RAS

The RAS interface has the same Record, Setup, Help, Search and Play buttons that are found on the front panel of the DVMS 400, and they work basically the same way.

Record

Click the **Record** button to begin recording, according to the Time-Lapse, Event Recording, or Pre-Event Recording settings you made in the Setup program. While you are recording the Status Bar will keep you updated if your recording state changes (from time-lapse to an event mode for example). To stop recording click the Record button again.

Normally when the unit is recording, only the Record button will be active, and you must stop recording to access the other functions.

If you enabled Dualstream recording using the Setup program's Remote Access function you will be able to play back clips on the RAS video monitor window and to archive clips (if you have set up an archive drive on the unit) while the unit is recording. When dualstream recording is enabled the Play, Search and Help buttons will be active while the unit continues to record. In dualstream recording mode you may record a maximum of 10 fields per second. When you enable dualstream recording any recording rates that are higher than this will be reset to 10 fields per second.

Setup

Click the **Setup** button to enter the DVMS 400's Setup program. All of the functions are available, with the exception of the **Change Password** function. Use your keyboard's arrow keys or the mouse to move up and down, use the Enter key to select an item, and use the keyboard to enter text.

Configuration Files

You can save the configuration of your DVMS 400 unit to a file on your PC. This file is a complete record of all of the settings you have made using the Setup function. While your PC is connected to DVMS 400, select **File > Save Configuration** from the main menu. The "Save As" window will open to allow you to give the configuration file a name and a directory location.

You may edit a configuration file only while you are disconnect from the DVMS 400 unit. Select **File > Edit Configuration file** from the main menu. The “Open File” window will open to allow you to select a directory location and a configuration file. After selecting a file the Setup button will be enabled on the RAS interface. You can use the Setup button to change configuration items. When you are finished you will be prompted to save the new settings.

To download a configuration to your DVMS 400, connect to the unit and select **Action > Download DVMS 400 Configuration** from the main menu

Help

Click the **Help** button to get the DVMS 400’s context sensitive help messages. Note that the RAS menu’s **Help > Help** and the **F1** key will also give you these messages, plus additional messages about RAS functions.

Search

To search the video clips you have previously recorded on your DVMS 400 and play them back on your computer:

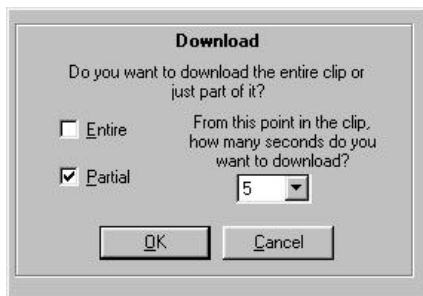
1. Click the **Search** button. This will open a window that allows you to select the Report you want to use as your search criteria.
2. Highlight the Report you would like to use (by clicking on it) and click the **Execute** button. You will be asked “Do you wish to see dismissed events as well?” Click the **Yes** or **No** button.
3. The existing video clips on your DVMS 400 will be searched and a list of all the events that match your Report’s criteria will be displayed. If the list is longer than the space available in the window you may use the vertical scroll bar and/or you may use the **Previous Clips** and **Next Clips** buttons to page up and page down.
4. To play a video clip select an item on the list and click **Play** or double click on the clip. When you start to play a video clip on your computer a Video Monitor window will be opened. The Video Monitor window’s image will be updated as quickly as possible for your particular connection type.

5. When you are playing video the buttons on the right side of the RAS change to show VCR style play controls in a semi-circle. Under these controls are the Video Clip Selection Controls.

The Video Clip Selection Controls are used in exactly the same way as the on-screen control panel that is displayed when you play a clip locally on the unit. Use the double arrow buttons to go to the next clip or previous clip. Use the double disk button to archive the clip. When you are playing an Event clip you may use the check mark button to Dismiss an event video clip. To stop playing the current clip and return to the video list click the square button.

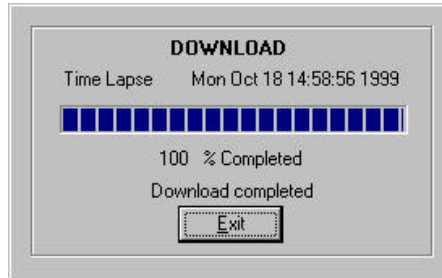


6. If you wish to download the file that is currently playing back, click the **Download Clip** button found on the far right side of the RAS interface. (This is the same button that is used to **Record Video** when you are monitoring a live camera.) A window opens prompting you to either download the entire clip or a partial clip. Make your selection by checking the box beside **Entire** or **Partial**. When you choose **Partial** the time drop down list is enabled. Choose from 5 to 300 seconds from the drop down list. Click **OK**.



A **Save As** window appears to allow you to give the downloaded video clip a file name. It will usually take a few minutes to download a video clip. A progress window is displayed while the clip is downloading.

The progress window will display an Abort button while the clip is being downloaded. If you click the Abort button the file will contain all the images you downloaded before clicking the button.



When the clip is finished downloading click the **Exit** button on the progress window. You will be returned to the video clip list.

Note that downloaded video files will not include audio. When you are using the RAS audio can only be monitored live.

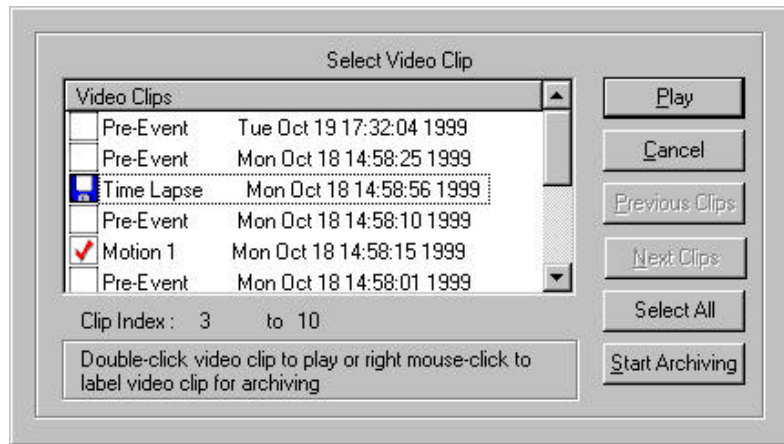
Play

Using the Play button on the RAS is very similar to using the Search button. Instead of selecting a Report to use as a Search criteria the DVMS 400 Play screen will be displayed on your computer. (For more information about the Play screen see the Playing Video section in Chapter 2.) Choose which type of video clips you would like to view and/or select the dates. A list of clips will be generated.

You may play clips on the list and download them the same way you as you do when you generate a list using the Search function.

Archiving Clips

When ever you generate a list of video clips, whether you use the Search function, the Play function, or the Setup function's Review Events or Execute a Report functions, you will be able to archive clips using the list.



To archive individual clips right click on the clips to mark them with a disk icon. To mark all of the clips on the list click on the Select All button. When you click on the Start Archiving button the marked clips will be copied from the regular drive to the archive drive.

Playing Downloaded Video Files

When you are playing clips from the unit (for example, using the Play function or the Search function) you can use the **Download Clip** button to download all or part of the video clip to your computer drive.

Once you have downloaded video files from your DVMS 400 to your computer's hard drive you do not need to be connected to the DVMS 400 to play these files. Start the RAS and when you are asked which device you would like to connect to click the **Cancel** button. To play a downloaded video file select **File > Open Video File** from the RAS main menu. A standard Open file window will be displayed. Select a video file (from the RAS\Video subdirectory) and click the **Open** button. A Video Monitor window will be opened and the VTR style play controls will be displayed on the right half of the RAS interface. Once you have finished viewing the file click the square stop button to close the Video Monitor window.

In order to improve the image refresh speed you can only play back downloaded video files in the small Video Monitor window.

You may also display BMP files using the RAS interface. Select **File > Open Video File** and use the drop down "Files of type" drop down box at the bottom of the window to select "Bitmap files (*.bmp)". Once you have

finished viewing the image file click the square stop button to close the Video Monitor window.

When you are playing downloaded video files you may select **Action > Authenticate Image** from the main RAS menu to verify that downloaded video files have not been altered in any way. To authenticate an image you will need to enter the serial number of the DVMS 400 unit that recorded the original video clip and the secret password for that DVMS 400 unit (available from your Gyr Dealer). Note that this function cannot be used to authenticate still image files (bmp files), just video files.

Using a Non-MMX Processor

If your computer does not have an MMX processor (CPU) you will not be able to monitor or playback DVMS 400 video images on your computer screen. However, you will be able to use the RAS to access the Setup Program, to download and edit configuration files, and to start and stop Recording.

Downloading DVMS 400 Software Using RAS

From time to time Gyr may update the software used by your DVMS 400 unit. If you have installed the RAS you may use it to download the newest software updates from your computer to your DVMS 400.

In order to protect your DVMS 400's internal programming, the RAS should only be used to download software files released by Gyr. These binary image files can be recognized by their file name. The files begin with the letters "DDI", are followed by a number, and end with a "G" followed by the binary extension ".bin" (for example DDI2_04G.bin). The numbers in the file name will vary between software updates.

To download software from your computer to your DVMS 400:

1. Save the DVMS 400 software file to a temporary folder on your computer's hard drive to speed up the downloading process.
2. Use the RAS to establish a connection between your computer and your DVMS 400.
3. Select **Action > Download DVMS 400 Software** from the main RAS

menu. Use the standard Open file window to locate the new DVMS 400 software on your computer. Highlight the file and click Open to start downloading the software.

4. While the software is downloading a progress bar will be displayed on the right side of your RAS interface. Once the entire file has been downloaded the DVMS 400 will burn in the new software. If the connection is broken for any reason and the DVMS 400 does not receive the entire file the process will be aborted.
5. When the new software burn has been completed you will be asked if you want to re-boot the DVMS 400 unit. In order to use the new software you must re-boot. If you click the **Yes** button you will be disconnected from the DVMS 400 and the unit will re-boot. Wait for at least one minute before trying to re-connect to the DVMS 400 to give the unit time to re-boot.

IMPORTANT: When the DVMS 400 is burning in the new software you should not interrupt it in any way. If power is lost to the DVMS 400 during the burn you may be unable to use your DVMS 400 and you may need to have your unit serviced by your Gyyr Dealer.

6. After you have downloaded the new software to your DVMS 400 unit you may update your RAS (if applicable).

Check the Gyyr web site (www.dps.com) regularly for software updates, or contact your Gyyr Dealer.

Disconnecting from the DVMS 400

Once you have finished using the RAS you can disconnect from the DVMS 400 using the RAS main menu to select **Action > Disconnect**. If you close the RAS, either by selecting **File > Exit** from the main menu or by clicking the **X** in the upper right hand corner of the RAS window, you will be disconnected automatically.

IMPORTANT: If your DVMS 400 was recording before you connected to the RAS, a warning window will appear when you disconnect. To resume recording before disconnecting select **Yes**.

CHAPTER 5: VIDEO FORMATS AND DIGITAL VIDEO

Frames and Fields

A single video image is called a frame. A frame is made up of a series of horizontally scanned lines. Each frame is made up of 2 fields. One field consists of all the odd numbered lines, and the other consists of all the even numbered lines. The two fields that make up a single frame are drawn on the screen one after the other, interlacing them to make the full picture. The interweaving of these two fields allows the apparent refresh rate of a video frame to appear to the human eye to be twice that of the actual refresh rate. The perception of screen flicker is thereby reduced, and the eye is fooled into seeing smooth motion when the picture changes.

NTSC and PAL

There are many possible ways to combine the luminance and chrominance information of a video signal into a single composite signal. Broadcast standards have been developed so that composite broadcast signals can be received and decoded by TVs that use the same standard.

NTSC (National Television Standards Committee) is a standard that was developed in the 1950s in the USA. It was the first black and white compatible, simultaneous color transmission system used for public broadcasting. It is used in the USA, Canada, Japan, and many other countries using an alternating current of 60 Hz. Occasionally NTSC has been called 'Never Twice the Same Color' because of the hue errors that have sometimes been a problem with NTSC signals. The NTSC definition of video black is not standardized. In North America it is defined as 7.5 IRE units and anything below that level is considered black. In Japan video black is defined as 0 IRE. (An IRE unit is 1% of the voltage difference from black to white. Thus 100 IRE is completely white and 0 IRE is completely black.)

NTSC features:

- 525 horizontal lines per frame, 485 of which form the picture
- 29.97 frames per second

PAL (Phase Alternate Line) was developed in Germany, and is used in many parts of the world that use an alternating current of 50 Hz. It was able to improve on some of the NTSC limitations, in particular the hue errors that were a problem with NTSC.

PAL features:

- 625 horizontal lines per frame, 576 of which form the picture
- 25 frames per second

Composite Video and S-Video

Color video picture signals have four basic components: the luminance (or brightness) and the three chrominance (or color) values (red, green, and blue). These four elements or components can be combined in several different ways to produce a video signal.

Composite video combines both the luminance and chrominance portions of the signal into one signal so that it can be transmitted along one wire. This is the most common type of signal used by home video systems. Broadcast signals also consist of composite video signals that follow one of the composite video broadcast standards (NTSC, PAL, and SECAM). These standards specify how the luminance, chrominance, blanking pulses, sync pulses and color burst information are combined.

S-Video signals, or separated video signals, transmit the luminance and the chrominance information separately. This type of video signal is also called Y/C (luminance/chrominance) or 'color under'. This system improves picture quality by keeping any signal interaction and subsequent degradation to a minimum.

The DVMS 400 has inputs for both composite video and S-Video. You may only hook up one camera to each input, either composite or S-Video. You can hook up different types of cameras to different inputs. When you are playing back data a composite output or an S-Video output may be used to send a signal to your composite or S-Video monitor.

Hard Disk Speed – Throughput

The speed of a hard disk is often measured by its seek time, which tells you how quickly the drive head can move from one section of its storage to another. For video recording and playback a much more important speed measurement is the throughput of the hard disk. The fastest hard disks are currently capable of speeds as high as 13 MB/s at the outer edge of the disk, while typical hard drive speeds vary from 3 to 7 MB/s. (The throughput is higher at the outer edge of the disk because the speed of a point on an outer track is faster than the speed of a point on an inner track for a disk with a fixed rotation rate.)

Is this fast enough for NTSC or PAL standard quality video? For digital video using the world standard CCIR-601 sampling rate, every frame of video is sampled at a resolution of 720 horizontal by 480 vertical pixels. Each pixel requires two bytes of data, one for the luminance and one for the chrominance. There are 29.97 frames per second. A little arithmetic gives a total data rate of approximately 20 MB/s. To achieve this speed you'd need several disks ganged together, along with an array of hardware and software to manage them. The cost of this kind of multi-disk arrangement would be too expensive for most applications.

A far more practical solution is to compress the data, so that it can be sent at the disk throughput rates of available hard drives.

Compression

Compression is a mathematical process which reduces the amount of data in a given file. There are many different types of compression processes (or algorithms), tailored for the type of data they are designed to compress. Compression schemes that are optimized for a specific type of data usually will not work as well for other data types. For example, compression schemes that are suited for text files may not be suitable for image compression.

Compression algorithms can be divided into reversible and non-reversible algorithms. When data is compressed and then de-compressed using a reversible algorithm the result is exactly the same as the original data. This type of compression is effective for data with a lot of redundancy, such as text, but it provides very little reduction in data size for non-redundant data such as digital video data.

To reduce the data size of video images, non-reversible compression algorithms have been developed which provide higher compression ratios

than reversible algorithms. Non-reversible algorithms don't give you back exactly the same data when they are de-compressed. Obviously this is not suitable for some types of data, such as numerical data or text, but non-reversible compression algorithms that have been especially designed for video images create very small changes in the image that do not significantly alter the overall look of the picture. These small changes are called digital artifacts.

How noticeable digital artifacts are depends on the amount and type of compression. By carefully tailoring compression the digital artifacts can be reduced to a virtually unnoticeable level. The DVMS 400 uses Wavelet compression, which produces images that do not show any obvious digital artifacts. Other compression schemes, for example JPEG compression, will show digital artifacts such as block artifacts, or "stair stepping", where the edge of a diagonal line has a slightly jagged edge.

The DVMS 400 uses compression rates that vary from 10:1 to 35:1 in increments of 5. A 10:1 compression ratio reduces the throughput for NTSC resolution to approximately 2 MB/s. Most hard drives will have no problem operating at this throughput rate. However, at this rate a 9 GB drive would be full in approximately one hour. You must balance the picture quality desired against the hard drive storage space available when you are selecting a compression ratio.

NTSC

Compression Ratio	Data Capture Rate	Approximate time that could be captured on a 9 GB drive		
		60 fields/sec	10 fields/sec	1 field/sec
10:1	2.0 MB/s	1.3 hours	7.6 hours	76.7 hours
20:1	1.0 MB/s	2.6 hours	15.3 hours	153.4 hours
30:1	0.67 MB/s	3.8 hours	23.0 hours	230.1 hours

Calculation Method:

Width in pixels x height in pixels x 2 bytes per pixel x number of fields per second x 3600 seconds per hour = bytes per hour (for a single frame, uncompressed)
 $720 \times 243 \times 2 \times 3600 = 1,259,712,000$ bytes/hour (for a single frame, uncompressed)

$$9 \text{ GB} = 1024 \text{ B/KB} \times 1024 \text{ KB/MB} \times 1024 \text{ MB/GB} \times 9 = 1,077,741,824 \times 9 \\ = 9,663,676,416 \text{ B}$$

$$\text{For } 30:1, 60 \text{ fields/second: } 9,663,676,416 / (1,259,712,000 \times 60 / 30) = 7.671 \times (30 / 60) \\ = 3.8 \text{ hours}$$

PAL

Compression Ratio	Data Capture Rate	Approximate time that could be captured on a 9 GB drive		
		50 fields/sec	10 fields/sec	1 field/sec
10:1	2.0 MB/s	1.3 hours	6.5 hours	64.7 hours
20:1	1.0 MB/s	2.6 hours	12.9 hours	129 hours
30:1	0.66 MB/s	3.9 hours	19.4 hours	194 hours

Wavelet Compression

The DVMS 400 uses Wavelet video compression to reduce the size of recorded video files. This advanced method of compression was chosen because it maintains a high image quality level while achieving very high compression ratios. Wavelet compression also eliminates the block artifacts seen in Discrete Cosine Transform (DCT) compression schemes such as JPEG and MPEG compression. At very high compression ratios images compressed with Wavelet compression become “softer” with less detail, saturation and contrast, rather than an image with obvious digital artifacts. Another advantage of wavelet compression is that it permits a simple motion detection algorithm to be used, which makes it ideal for CCTV applications.

To specify how much compression is being used by your system you can change the Compression settings in the Setup program. (See Time-Lapse Recording, page 42, Event Recording, General Setup, page 44, and Pre-Event Recording, page 53).

Audio Compression

CD-quality stereo sound uses an audio sampling rate of 44100 samples per second. This requires a data transfer rate of 172 kB/s. For time lapse audio recording the DVMS 400 uses True Speech compression, a speech compression mode that uses only 1.04 kB/s. The audio data can be played back in sync with the video image data. If you do not need sound recorded with your video you may choose not to record from the audio input.

APPENDIX A: MODEM AND NULL MODEM CONNECTIONS

Overview

The DVMS 400 comes with two programs that allow you to use your PC with your DVMS 400: the Software Update Utility (SUU) and the Remote Access Software (RAS). The Software Update Utility program is used solely to download software updates to your DVMS 400 unit. The Remote Access Software is a more versatile tool that can be used to give you full access to your DVMS 400 from a local or a remote computer.

When you use the Remote Access Software you will connect to your unit via a modem, a null modem or an ethernet connection. If you plan to use a modem or a null modem connection you must have Dial Up Networking installed before you can use the RAS software to create a dial-up modem or a null modem cable connection. Note that you can use the RAS software to create an ethernet connection without installing Dial Up Networking. This chapter will go over the steps needed to install Dial Up Networking and a modem or null modem on your computer.

How your computer handles modem communications depends on which operating system you are using (Windows 95, Windows 98 or Windows NT) and which communication method (dial-up modem, null modem cable) that you plan to use. Refer to the section that applies to you. Please note: due to the many system differences possible, you may find some minor differences between your steps or screen displays and what is shown in this User's Guide.

Windows 95/98	
Dial-up Networking	102
Modem	106
Null Modem	107
Windows NT	
Modem	112
Null Modem	113
Dial-up Networking	116

Windows 95 / 98

Dial-Up Networking

Before you can use a modem or a null modem you must set up the Dial-up Network properties that your computer will use when it is using the modem. Dial-up Networking may or may not have been set up on your computer when Windows 95/98 was initially installed. If it was installed you will see a Dial-up Networking Icon in the window that is opened when you double click the My Computer icon.

Double click on the My Computer icon.



My Computer

If you do not see the Dial-up Networking icon you will need to install Dial-up Networking. Follow steps 1-5 below.



Dial-Up
Networking

If you do see this icon skip to the next section, “Adding the Dial-up Adapter”.

Installing Dial-up Networking:

1. Double click the My Computer icon on your desktop.
Double click the Control Panel icon.



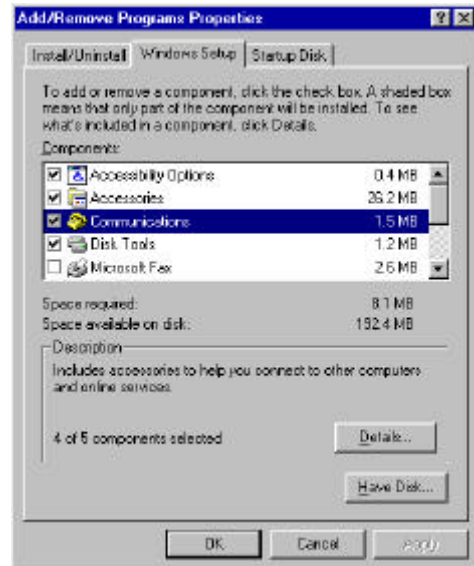
Control Panel

Double click the Add/Remove Programs icon.



Add/Remove
Programs

2. Click the Windows Setup tab.
3. Highlight the Communications item.
4. Click the Details button.
5. Put a check mark in the Dial-up Networking box. Click OK. (You may be asked for your Windows 95/98 CD. Put it in your CD ROM Drive to continue the installation.) As part of the installation you will be asked to set up a new connection. You may use this opportunity to set up a DVMS 400 Connection or you may set it up later from the Gyyr RAS.



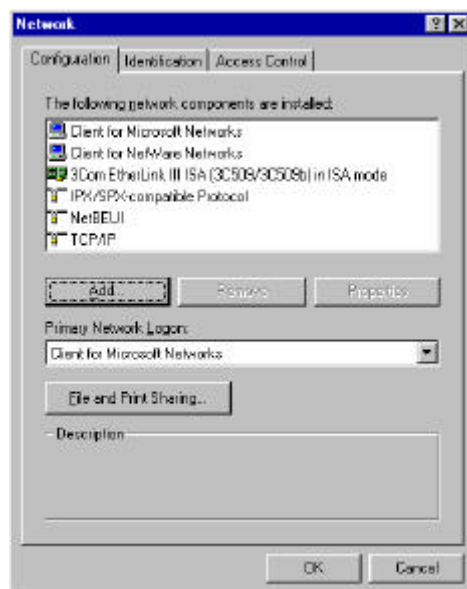
Adding the Dial-up Adapter:

You may also need to add the TCP/IP Dial-up Adapter used by Windows for communications. To do this:

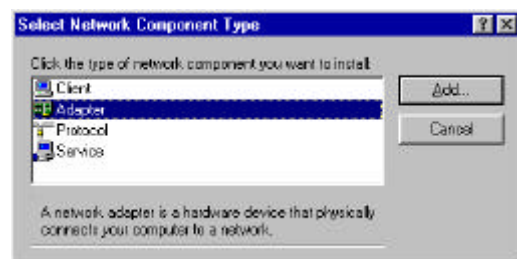
1. Double click the My Computer icon on your desktop. Double click the Control Panel icon. Double click the Network icon.



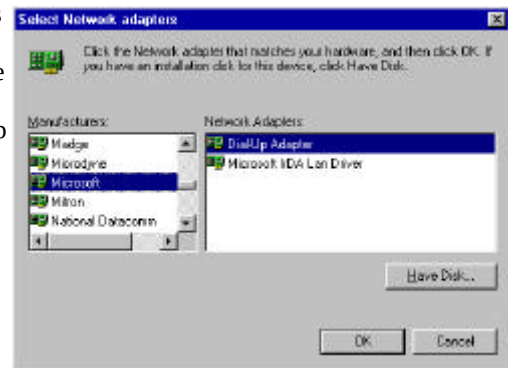
2. In the Network window click on the **Add** button.



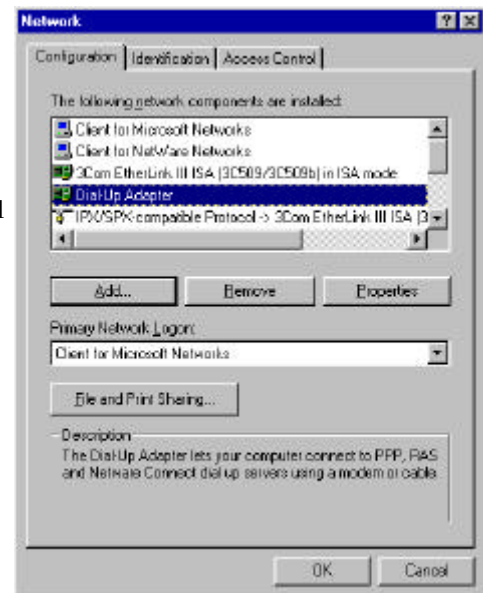
3. Highlight Adapter in the list and click on the **Add** button.



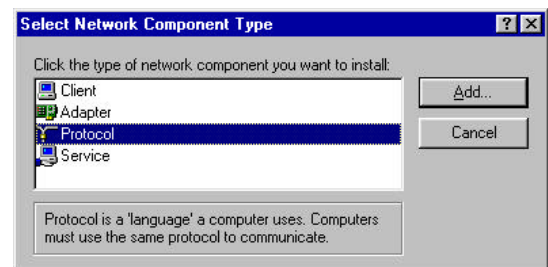
4. In the Manufacturers list highlight Microsoft, and in the Network Adapters list highlight Dial-Up Adapter. Click OK.



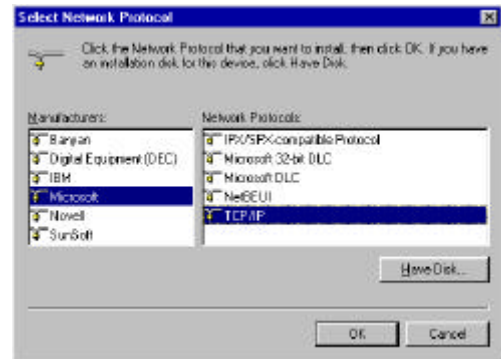
5. The Network window will now show the Dial-up Adapter in the list. Click the **Add** button again.



6. This time select Protocol from the list.



7. In the Manufacturers list highlight Microsoft, and in the Network Protocols list highlight TCP/IP. Click **OK**. (This will bind the TCP/IP protocol to the Dial-up adapter.)



8. Click **OK** on the main Network window. You will have to re-boot your computer to finish installing your new Dial-up Adapter. This will add a "TCP/IP Dial-up Adapter" to your list of network components.

Installing a Modem

To use a modem with Windows 95/98 you must first install your modem. If you have already installed your modem you may skip this section.

1. Start up Windows 95/98 on your PC.
2. Double click the My Computer icon on your desktop.



My Computer

3. Double click the Control Panel icon.



Control Panel

4. Double click the Modems icon.



Modems

5. If you have never installed a modem on your computer the Windows Installation Wizard will lead you through the process.

If you have installed a modem on your computer double clicking on the Modems icon will open the Modem Properties window. Use the **Add** button to add a new modem or the **Properties** button to change the properties of your currently installed modem. (You may need the disk that came with your modem or your Windows 95/98 disk.)

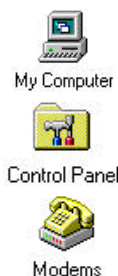
Installing a Null Modem

NOTE: You will **not** need to install the null modem driver to use the Software Update Utility.

To make a null modem cable connection from your PC to your DVMS 400 you will need to use a **serial null-modem RS-232** cable (not a standard serial cable), and you must install the Null Modem driver supplied with your Remote Access Software. (Note that you cannot use the Direct Cable Connection function from Windows 95/98 as that function is only intended to connect computers running Windows operating systems.)

To use a null modem cable connection with Windows 95/98 you must first install the null modem driver. Installing the null modem driver uses the same initial steps as installing a regular modem.

1. Start up Windows 95/98 on your PC.
2. Double click the My Computer icon on your desktop.
3. Double click the Control Panel icon.
4. Double click the Modems icon.
5. If you have never installed a modem on this computer the Windows Installation Wizard will lead you through the process.

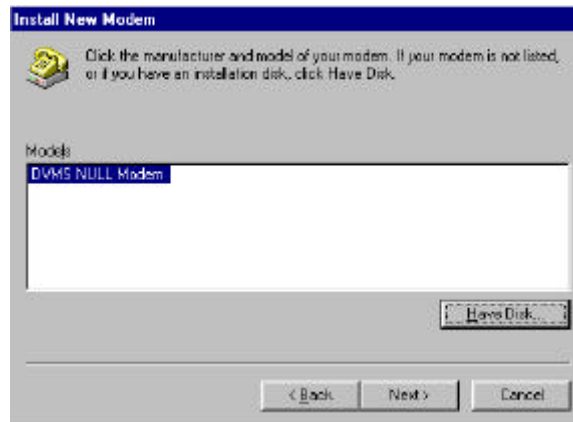


If you have installed a modem on this computer before double clicking on the Modems icon will open the Modem Properties window. Use the **Add** button to add the null modem connection

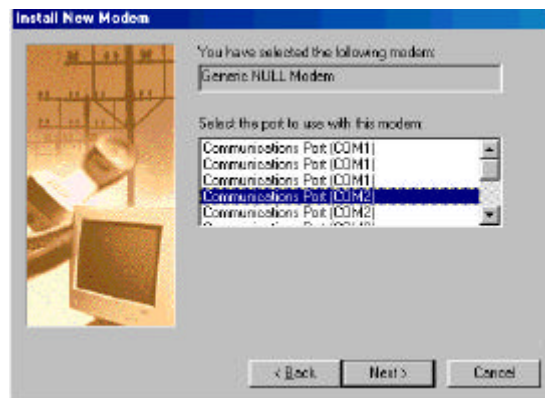
When you start to add the new modem check the “don’t detect my modem; I will select it from a list” box. Click on the **Next** button.

6. Click on the **Have Disk** button and use the **Browse** button to select the Null Modem directory on your DVMS 400 CD. Click the **OK** button.

7. In the next window select "DVMS 400 Null Modem". Click the **Next** button.



8. In the next window click on the computer's communication port that you intend to use for your direct connection. Remember, to use it with your DVMS 400 this must be a serial port (usually Com1 or Com2).



9. Click on the **Next** button. Windows 95/98 will install the driver. When it is done click the **Finish** button. Your newly installed Null-Modem driver will appear in the modem list. Click **OK** to exit the modem subroutine.

Creating a DVMS 400 Modem Connection

NOTE: You can create a DVMS 400 Modem connection using the Gyrr RAS software. The following section is provided for reference.

Once the previous steps are complete you should see a Dial-up Networking icon in your My Computer window. Double click on the Dial-up Networking icon. If you did not set up a DVMS 400 connection in the previous steps you may do it now by double clicking the Make New Connection icon and following on-screen instructions. Once you have finished creating a DVMS 400 connection you will need to modify some of the properties.

1. Right click on your newly created DVMS 400 icon and select Properties from the pop up menu.

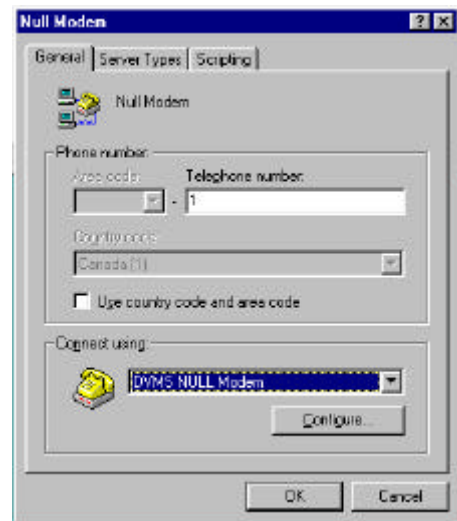


2. The Properties page has a General tab which includes the phone number and the modem to be used by this connection.

Under the General tab you will see the phone number information.

For a **regular modem** enter the phone number you need to dial to connect to the DVMS 400's modem.

For a **null modem** enter a telephone number of "1" and click the **OK** button.

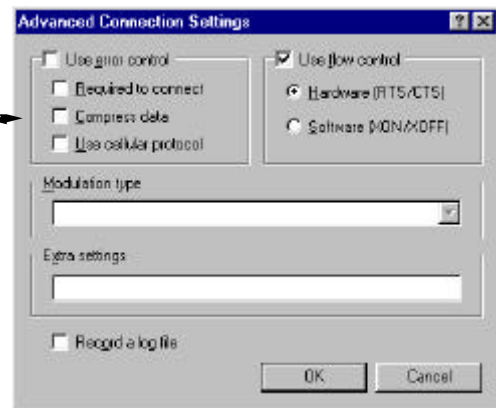


3. Some **dial-up modems** have a compression option. When you install a regular dial-up modem to use with DVMS 400 you will need to make sure that this option is disabled. Turning off the compression option does not significantly affect transmission times because DVMS 400 data is already highly compressed before it leaves the unit.

To turn off the compression option select the **General** tab and click the **Configure** button. This will open a configure properties window. Select the **Connection** tab and click on the **Advanced** button to open the Advanced Connection Settings window.

The upper left hand side of the Advanced Connection Settings window is a "Use Error Control" section. For some modems this will be grayed out. If it is not grayed out make sure the "Compress Data" check box is **NOT** checked. Click OK to return to the main DVMS 400 properties window.

Clear the
Compress Data
check box

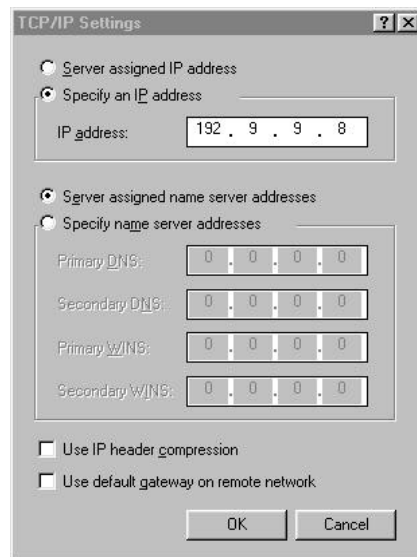


4. Select the **Server Types** tab. (On some systems “Server Types” is a button instead of a tab. If that is true for you click the **Server Type** button.)
5. You **must** clear all the checkmarks except the one in the **TCP/IP** box.
6. Click the **TCP/IP Settings** button.



7. Click the **Specify an IP Address** radio button and enter a unique IP address as shown.

Make sure the IP address you enter here is a unique number. This is your computer's modem address. It should be different from your DVMS 400's address. No other computers or DVMS 400 units on your network should use the same number. You may need to contact your network administrator for IP address information. (See page 34 for more information about your DVMS 400's IP address.)



8. Click **OK** to save your settings.

Your modem connection is now installed and ready to use with your DVMS 400 Remote Access Software.

Windows NT

Installing a Modem

To use a modem with Windows NT you must first install your modem. If you have already installed your modem skip to the next section.

NOTE: To install a modem in Windows NT you must be logged on with Administrator privileges.

1. Start up Windows NT on your PC.
2. Double click the My Computer icon on your desktop.
3. Double click the Control Panel icon.
4. Double click the Modems icon.

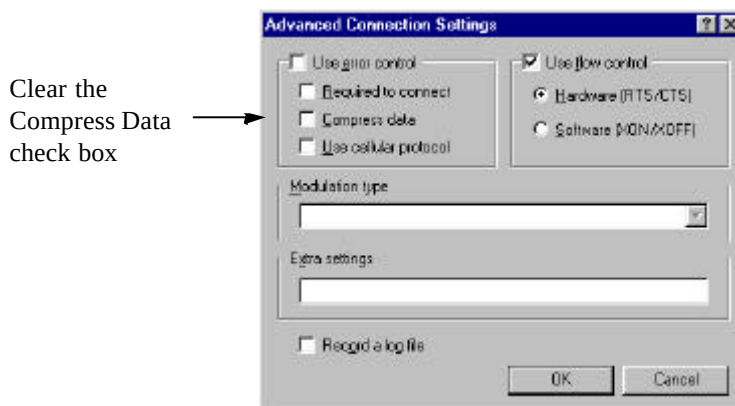


5. If you have never installed a modem on this computer the Windows Installation Wizard will lead you through the process.

If you have installed a modem on this computer double clicking on the Modems icon will open the Modem Properties window. Use the **Add** button to add a new modem or the **Properties** button to change the properties of your currently installed modem. (You may need the disk that came with your modem or your Windows NT disk.)

Some dial-up modems have a compression option. After you install a modem to use with the DVMS 400 you will need to make sure that this option is disabled. Turning off the compression option does not significantly affect transmission times because DVMS 400 data is already highly compressed before it even leaves the unit.

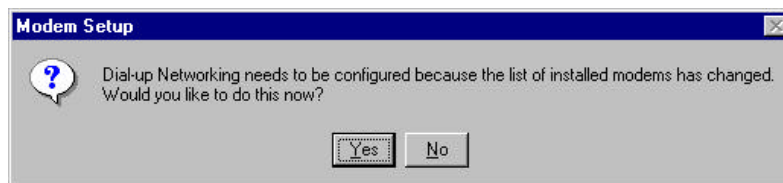
To turn off the compression option open the Control Panel and double click on the Modems icon. Select your DVMS 400 modem from the list and click on the **Properties** button. Select the **Connection** tab and click on the **Advanced** button.



The upper left hand side of the Advanced Connection Settings window is a "Use Error Control" section. For some modems this will be grayed out. If it is not grayed out make sure the "Compress Data" check box is **NOT** checked. Click OK to save your settings.

Next you will need to install Dial-Up Networking to use the Modem you have just installed. Refer to the Dial-Up Networking section, page 116.

If Dial-Up Networking has already been installed on your computer you will see the following message:



Click the **Yes** button. The Windows Remote Access Setup window will open. Click the Add button to add your newly installed modem to the list. Refer to the Dial-Up Networking section, page 116.

Installing a Null Modem

NOTE: You will **not** need to install the null modem driver to use the Software Update Utility.

To make a null modem cable connection from your PC to your DVMS 400 you will need to use a **serial null-modem RS-232** cable (not a standard serial cable), and you must install the Null Modem driver supplied with your

Remote Access Software. (Note that you cannot use the Direct Cable Connection function from Windows NT as that function is only intended to connect computers running Windows operating systems.)

To use a null modem cable connection with Windows NT you must first install the null modem driver. Installing the null modem driver uses the same initial steps as installing a regular modem.

1. Start up Windows NT on your PC.
2. Double click the My Computer icon on your desktop.



3. Double click the Control Panel icon.



4. Double click the Modems icon.



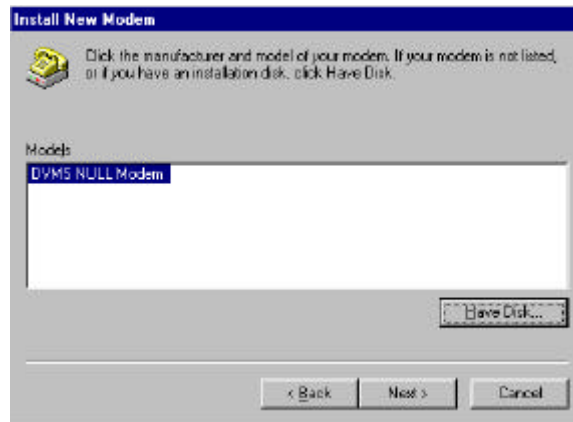
5. If you have never installed a modem on this computer the Windows Installation Wizard will lead you through the process.

If you have installed a modem on this computer before double clicking on the Modems icon will open the Modem Properties window. Use the **Add** button to add the null modem connection

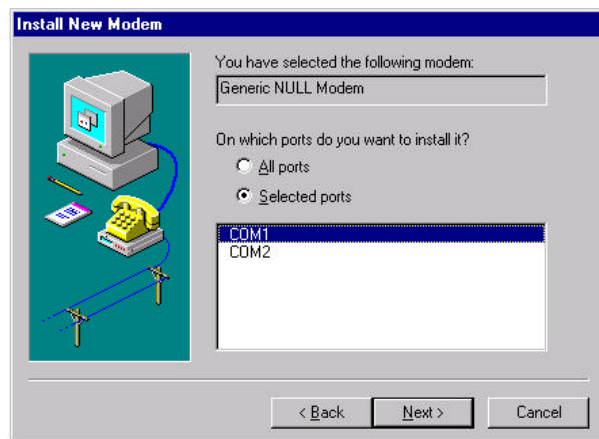
When you start to add the new modem check the “don’t detect my modem; I will select it from a list” box. Click on the **Next** button.

6. Click on the **Have Disk** button and use the **Browse** button to select the Null Modem directory of your DVMS 400 CD. Click the **OK** button.

7. In the next window select “DVMS 400 Null Modem”. Click the **Next** button.



8. Click on the computer’s communication port that you intend to use for your null modem cable connection. Remember, to use it with your DVMS 400 this must be a serial port (usually Com1 or Com2).



9. Click on the **Next** button. You will be asked to provide “Local Information”, such as your local area code. This information is not used when you are making a null modem connection. Click the **Next** button.
10. Windows NT will install the driver. When it is done click the **Finish** button. Your newly installed Null-Modem connection will appear on the modem list. Click **Close** to exit the modem subroutine.

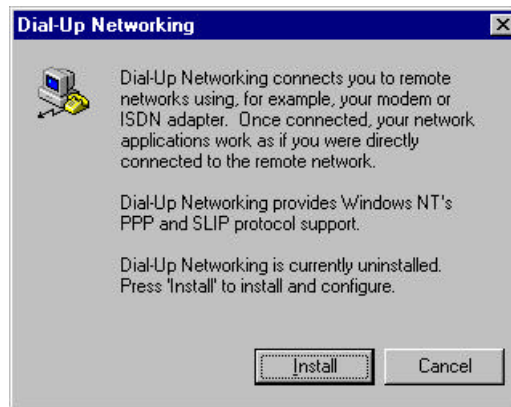
Next you will need to install Dial-Up Networking to use the Null Modem driver you have just installed.

Dial-up Networking

Before you can use a modem you must set up the Dial-up Network properties that your computer will use when it is connecting to your DVMS 400. Dial-up Networking may or may not have been installed on your computer when Windows NT was initially installed.



Double Click on the My Computer icon on your desktop. Double click the Dial-Up Networking icon. This will open a window that tells you whether or not it is installed, and gives you the opportunity to install it now.



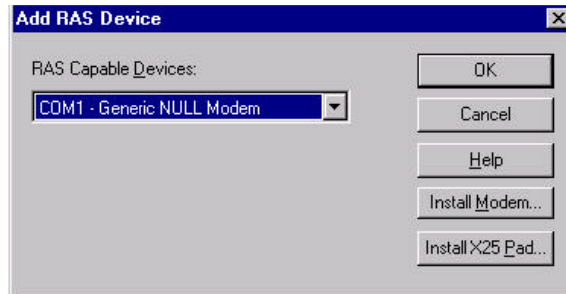
If you have not installed it previously, do so now following the instructions in the next section. If you have already installed Dial-up Networking you will still need to update Dial-up Networking to add your modem or null modem to the list of devices recognized by Windows NT. Skip to step 4.

Installing or Updating Dial-up Networking

Before installing Dial-up Networking you will need to have a dial-up modem attached to your computer and turned on (or to have a null modem driver installed) so that Windows NT can detect it while installing the dial-up networking.

1. Double click on the Dial-up Networking icon and click on the **Install** button.

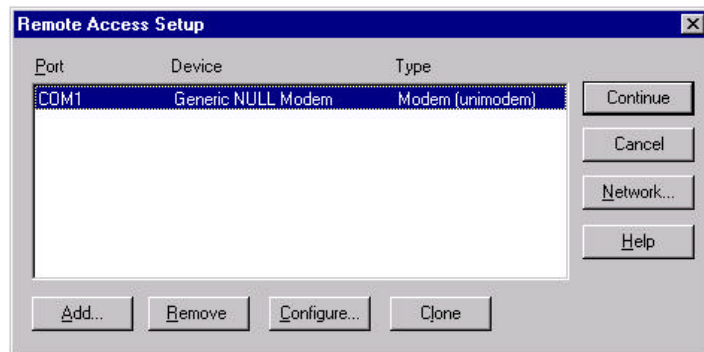
2. You will be prompted to find the required file. Insert your Windows NT CD in your CD drive, use the browse button to find the required file, and click **OK**. The required files will be copied to your system drive.
3. A window will open to allow you to select a RAS (Remote Access Setup) device. Select the modem that you just installed and click **OK**.



4. A Remote Access Setup list will be displayed.

If you are **installing** Dial-up Networking your newly added device will be shown on the list. Click the **Network** button and proceed to Step 5.

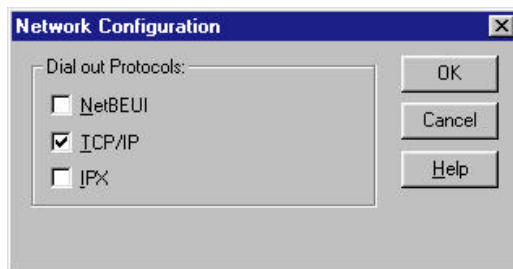
If you are **updating** Dial-up Networking your newly added device will not be shown on the list. Click the Add button to select your new modem or null-modem from a drop-down list and click OK. Your new device should now be shown on the list.



Note: You can open the Remote Access Setup window at any time by opening the Windows NT Control Panel, double clicking on the Network icon, selecting the Service tab, selecting Remote Access Service from the list, and clicking on the Properties button.

You can only add one modem or null modem per Com Port installed on your computer.

5. The Network Configuration window opens. You **must** make sure that only the TCP/IP box is checked. If necessary, uncheck the NetBEUI and the IPX check boxes. Click OK.



6. On the Remote Access Setup window click Continue. You will be asked if you want to restart your computer (to have your new settings take effect). Shut down all programs, remove any floppy disks, and click the **Restart** button.

Before you can use your new modem connection you must create a DVMS 400 Phonebook Entry. Note that each modem or dial-up modem may have multiple Phonebook Entries that can be used to connect to different devices. For example, you may use the same dial-up modem to connect your computer to the internet (using one phone number) and to connect your computer to a DVMS 400 unit (using another phone number).

Creating a Phonebook Entry

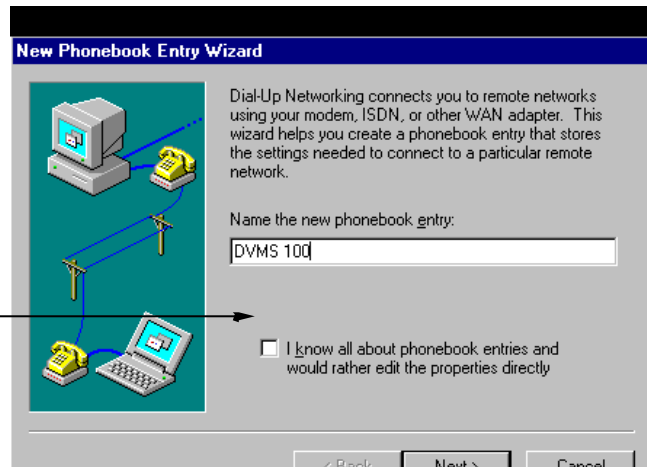
NOTE: You can install a Phonebook Entry using the Gyyr RAS software. The following section is provided here for reference.

1. Start Windows NT, double click on the “My Computer” icon, and then double click on the “Dial-up Networking” icon.

If you have never created a phonebook entry you will see a message window “The phone book is empty. Press OK to add an entry.” Click **OK**. You will be then be asked to create a new entry. If you have never done this before you will be shown the Entry Wizard. Bypass this wizard and edit the properties directly by putting a check mark in the box as shown and proceed to step 2.

If you have never created a phonebook entry you will see this window.

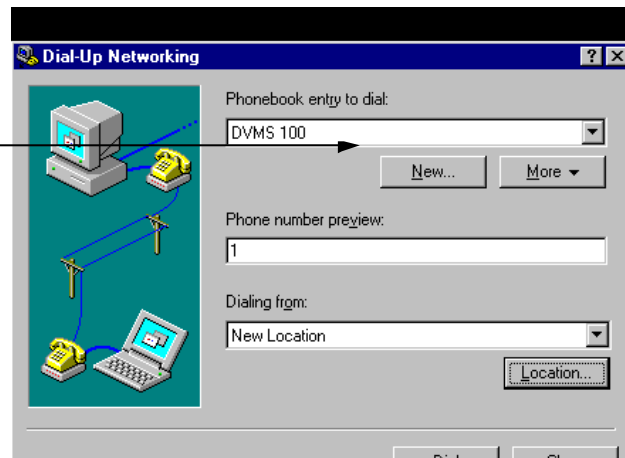
Check this box to bypass the Wizard and click the Next button.



If you have previously created a phonebook entry, simply click on the “New” button on the Dial-Up Networking dialog box and proceed to step 2.

If you have created a phonebook entry before you will see this window.

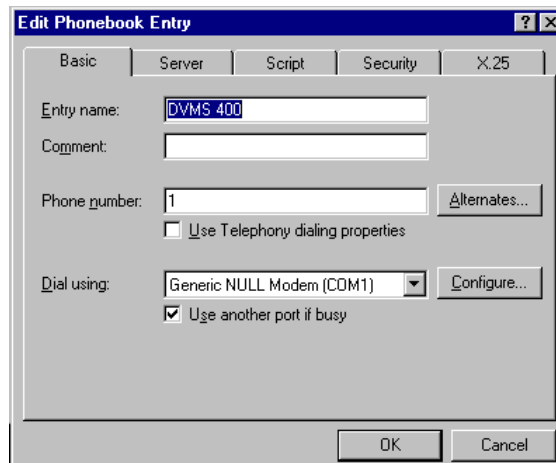
Click the New button to create a new Phonebook entry.



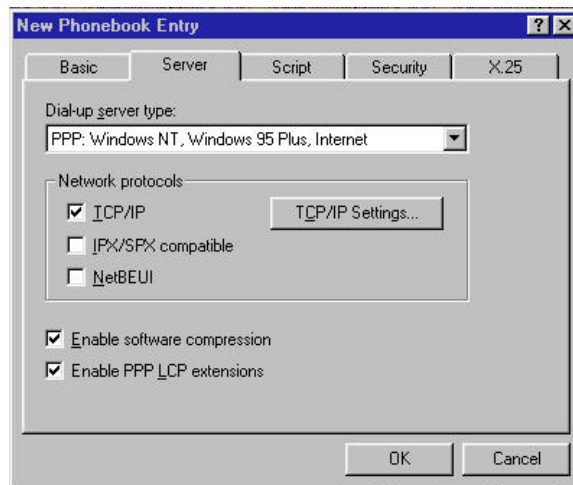
2. The New Phonebook Entry window will open. Enter a name for your new phone book entry.

If you are using a **dial-up modem** enter the phone number and the modem to use for this connection.

If you are using a **null modem connection** you will not be using the phone lines to make the connection, so you will not need to dial a phone number. When you are creating a Phonebook Entry for your null modem connection enter a phone number of “1”.

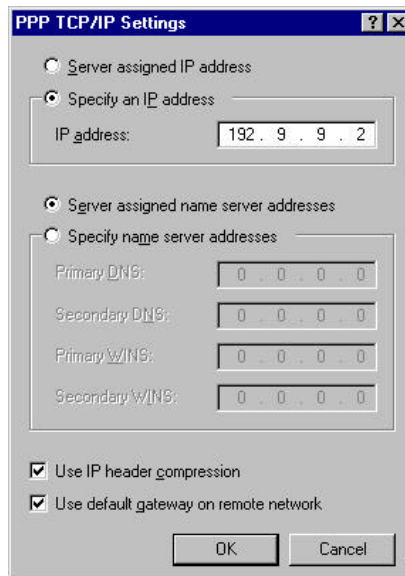


3. Click on the Server tab.



In the Network Protocols section you **must** make sure that only the TCP/IP box is checked. If necessary, uncheck the NetBEUI and the IPX check boxes.

Select "PPP" in the "Dial-up server type" drop-down box. Click on the **TCP/IP Settings** button.



4. Click the **Specify an IP Address** radio button and enter a unique IP address as shown.

Make sure the IP address you enter here is a **unique number**. This is your computer's modem address. It should be different from your DVMS 400's address. No other computers or DVMS 400 units on your network should use the same number. You may need to contact your network administrator for IP address information. (See page 34 for more information about your DVMS 400's IP address.)

Click OK.

5. Click the Script tab and make sure the Login script selected is "None".
6. Click the **OK** button to create your new Phonebook Entry.

Once you have created a Phonebook entry you may add more entries or modify existing entries by double clicking on the "My Computer" icon and then double clicking on the "Dial-up Networking" icon. This will open the **Dial-up Networking** window. Click on the **New** button to create a new entry or click on the **More** drop down button to edit an entry.

Your modem connection is now fully installed and ready to use with your Gyyr Remote Access Software.

APPENDIX B: GYYR DVMS 400

SPECIFICATIONS

Hard Drives:

- Maximum 7 SCSI-2 devices
- 1 3.5" internal drive bay
- 1 5.25" front loading drive bay for removable media
- 1 external high-density SCSI-2 connector

Imaging:

- CCIR 610 625/525 Lines
- Separate PAL and NTSC models
- Operates in either field or frame mode

Resolution:

- 720 x 486 NTSC per field/frame
- 720 x 576 PAL per field/frame

Record and Playback Speeds:

- Adjustable from 0.05 fields/second to 60 fields/second (NTSC)
- Adjustable from 0.05 fields/second to 50 fields/second (PAL)

Input/Output Levels: V_{p-p} 75 Ohm unbalanced or S-Video

Dimensions: 17"W x 16"D x 4.8"H (43.2 cm W x 40.6 cm D x 12.2 cm H)

Weight: 17 lbs. (7.7 kg) (excluding drives)

Operating Temperature: 40° F to 100° F (4° C to 38° C)

Power: 115 VAC 50/60 HZ or 230 VAC 50/60 Hz; 125 Watts

Text Insertion:

- 4 EIA-232 DB-9 Async ports
- Up to 40 characters/line
- Selectable 1 through 10 lines per camera
- Searchable by date/time, port and content

On-Screen Display:

- Color graphical user interface
- Programmable operating parameters
- Non-volatile programming
- Camera titling to 24 characters
- Optional date/time “burned” into image before digitization

Alarm Inputs:

- Contact closure/open or TTL open-collector
- Programmable polarity
- 4 Alarm inputs plus Reset, Arm
- Duration: manual or programmable
- Search to any alarm frame, date/time

Alarm Output:

- 1 contact closure
- 24 Volt, 100 mA

Audio:

- Input/output levels: consumer audio/VCR levels (-4 dB)
- 1.04 kB/sec compressed data rate
- All record speeds supported

Motion Detection:

- 4 channels zoned
- On-screen GUI programmable
- Auto luminance adjusting

Connections:

- Video In: 4 BNC / S-Video with composite BNC loop connectors
- Video Out: 1 composite BNC and 1 S-Video
- Audio In/Out: 1 RCA jack each
- Alarm In/Out: 9-pin terminal block; screws accessible from rear
- Text In: 4 DB-9 male connectors
- SCSI: High-density 50-pin connector
- Remote Access: 1 DB-9P, EIA-232 Async port
- PC card slot (PCMCIA) Type 2

Internal Battery:

- Lithium Battery, Panasonic, Part No. BR2330
- Estimated life span: 10 years
- If you suspect that your internal battery may need to be replaced please contact Gyyr for replacement batteries.
- Replace battery only with Panasonic, Part No. BR2330. Use of another battery may present a risk of fire or explosion.
- Caution:** Battery may explode if mistreated. Do not recharge, disassemble or dispose of in fire.

Null Modem Cable

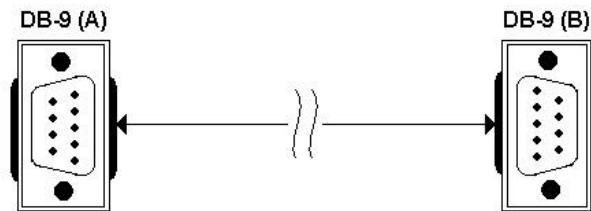
A null modem cable will be included with your RAS package from Gyyr, or it can be ordered from Gyyr. A null modem cable consists of a DB-9 female to a DB-9 female connection. If you choose to create your own null modem cable, the following table indicates the pinouts.

DB-9 (A) Pin	DB-9 (B) Pin
1	7, 8
2	3
3	2
4	6
5	5
6	4
7	1
8	1
9	9

Note:

Pin 8 of DB-9 (A) is connected to pin 1 of DB-9 (A).

Pin 8 of DB-9 (B) is connected to pin 1 of DB-9 (B).



APPENDIX C:

COMPLIANCE AND CONFORMITY

FCC Compliance Statement

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her own expense.

Declaration of Conformity

Application of Council Directive(s):	89/336/EEC – The EMC Directive
Manufacturer's Name:	DPS Inc. for Gyyr Inc.
Manufacturer's Address:	70 Valleywood Drive Markham, Ontario Canada L3R 4T5
Equipment Type/Environment:	ITE for light industrial, commercial and residential
Trade Name and Model Number:	Gyyr DVMS 400
Year of Manufacture:	1998

Standards to which Conformity is Declared:

- EN 55022:1997 Class A – Limits and methods of measurement of radio disturbance characteristics of information technology equipment.
- EN 50082-1:1997 Generic immunity for residential, commercial and light industrial environment.

Standard	Description	Severity Applied	Performance Criteria
IEC 1000 -4 -2	Electrostatic Discharge	4kV direct and indirect contact, 8kV air	A
IEC 1000 -4 -3	Radiated RF Immunity	3V/m, 26 -1000 MHz, 1kHz 80% AM modulation	A
IEC 1000 -4 -4	Electrical Fast Transient	1kV on AC lines	A
IEC-1000 -4 -5	Surge Withstand	1kV common mode 0.5 kV differential	A
IEC 1000 -4 -6	Conducted Immunity Current and Voltage	2 V 0.15 - 100 MHz	A
IEC 1000 -4 -11	Immunity for voltage dips, short interrupts and voltage variation		A
IEC 1000 -3 -2/3	Current harmonics and voltage fluctuations		A

INDEX

A

Access (User), 13
 Access Port (Remote), 34
 Alarm Arm, 7, 41
 Alarm Arm Setup, 45
 Alarm Events, 47
 Alarm Inputs, 6, 41
 Alarm Output, 7
 Alarm Reset, 7, 41
 Archive Clips, 29, 66
 Archive Clips - RAS, 91
 Archive Drive, 21
 Audio Compression, 99

B

Black and White Display, 37

C

Cables, 8
 Calendar
 Holiday Setup, 15
 Normal/Alternate Setup, 16
 Pre-Event and Time-Lapse, 17
 Record Times for a day, 14
 Clock Set, 19
 Communications
 PCMCIA, 8
 Remote Access Port, 7
 Composite Video, 96
 Compression, 97
 Configuration Files - RAS, 88
 Control Panel - on screen, 28
 Cursor Controls, 9

D

Data Transfer Rate, 97
 Default Settings, 33
 Dial-Up Networking
 Windows 95, 102
 Windows 98, 102
 Disk Setup, 20
 Display Color or Mono, 37
 Download Software, 36
 Downloaded Video Files, 92
 Dualstream Mode, 35

E

Ethernet Connection
 Remote Access Setup, 34
 Remote Access Software, 76
 Events
 Alarm Events, 47
 Event Recording, 60
 General Setup, 44
 Motion Events, 49
 Pre-Event, 53
 Review Video, 28
 Text Events, 45

F

Frames and Fields, 95

H

Hard Drive Space, 98
 Hot-Swap Drive, 21

I

Input Alarms, 47
 Install
 Equipment, 5
 Setup program, 32
 IP Address, 34, 77, 80, 82

K

Keypad Enable, 35

L

Language Change, 37
 Live Monitoring, 59
 Login using RAS, 83

M

Microphone, 6
 Modem Connection, 77
 Modem Properties, 81
 Motion Events, 49

N

NTSC composite video, 95
 Null Modem Connection, 77

P

PAL composite video, 95
Password, Changing, 12
PCMCIA, 8
Permissions (User), 13
Phonebook Entry, 79
Playing Video, 62
 Normal Play Screen, 62
 Simple Play Screen, 65
 Time-lapse, 64
Pre-Event Recording, 53
Printing, 68

Q

Quad Mode, 38, 59

R

Recording
 Compression Ratio, 43
 Digital Video, 60, 95
 Event Recording, 44
 Recording Rate (fps), 43
 Settings, 42
 Starting, 60
 Time-Lapse, 42
 to Video Tape, 68
Recording Video - RAS, 86
Remote Access, 7, 13, 34
Remote Access Software, 73
 Login, 83
Remote Keypad, 35

Reports

Criteria, 25
 Event Criteria, 26
 Event Reports, 30
 Execute, 27
 Text Criteria, 25
 Video Reports, 24
Review Events, 30

S

SCSI Connector, 8
Search, 67
Serial Data Inputs
 See Text Insertion Ports, 6
Service, Setup Program, 32
Setup Program, starting, 9
Setup Reference Map, 56
Software Update Utility, 69
Speaker, 6
Speed, Hard Disk, 97
Still Images, 68
S-Video, 96
Switch Inputs, *See Alarm Inputs*,
 6, 41
Switcher, 38
System Info, Setup Program, 33
System Log, 36

T

Text - Controls for Changing, 9
Text Entry Screen, 10
Text Events, 45

Text In, 40

Text Insertion Ports, 6
Text Scrolling, 41
Throughput, 97
Time Lapse Recording, 42, 60
Title - Video Camera, 39

U

Unit ID, 37
User Permissions, 13
User Preferences - RAS, 87
User Preferences - unit, 37

V

VCR Setup, 31
Video Camera Title, 39
Video Cameras, 5
Video Formats, 95
Video In, Setup Program, 39
Video Monitor, 6
Video Monitoring - RAS, 85
Video Reports, 24

W

Wavelet Compression, 99
Windows 95/98
 Modem Properties
Windows NT
 Phonebook Entry



The security industry's best electronic surveillance equipment deserves the security industry's best warranty program...

Parts and labor for 2 years

Person-to-Person™ service for a lifetime

When you buy a Gyyr product, you're buying more than just great electronic surveillance equipment. That's because Gyyr's electronic surveillance products are backed by a two-year parts and labor program — plus the support of Gyyr's *Person-to-Person* service staff for the life of the product. To register your new product, complete and return this card. Then sit back and relax. You've got Gyyr on your side.

! Please provide us with the following information:

Company Name:	
Your Name:	
Address:	
City:	
State/Country:	Zip:
Phone:	Fax:
E-mail Address:	
Product Purchased:	
Model Number:	Serial Number:
Date of Purchase:	
Equipment Purchased From:	
Vendor's Address:	
City:	
State/Country:	Zip:

? How did you hear about this product? (Select one)

- ☐ Dealer recommendation
☐ Consultant ☐ Press Release
☐ Friend ☐ Advertising
☐ Past experience with Gyyr, Inc. equipment
☐ Article. What publication? _____

? What other brands did you consider? (List all)

**! Put check next to primary type of business/product application?
(Select one)**

- ☐ Architectural/Engineering Firm
☐ Distribution/Transportation
☐ Education (School/College/University)
☐ Financial/Banking/Insurance
☐ Government (Nonmilitary)
☐ Health Care (Hospital/Nursing Home)
☐ Hotel/Motel/Resort
☐ Industrial/Manufacturing Co.
☐ Law Enforcement/Corrections
☐ Library/Museum
☐ Military
☐ Retail
☐ Security Consulting Firm
☐ Utilities/Communications
☐ Other: _____

! Put check by reason for purchasing equipment? (Select one)

- ☐ Additional equipment for an existing location
☐ Equipment for a new location
☐ Replacement of an individual component
☐ Replacement of an existing system

**! To thank you for your time, we'd like to send you a small gift.
Please indicate your preference:**

- ☐ Gyyr Screw Driver Set ☐ Gyyr Coffee Mug ☐ Gyyr Mouse Pad

Two-Year Limited Warranty

During the period of two (2) years after sale to the original end-user, the manufacturer warrants this product in workmanship and material.

The manufacturer will replace all necessary parts without a charge for parts or labor.

The warranty shall not apply to defects resulting from unauthorized modification, misuse, fire, floods, acts of nature or alterations of serial number.

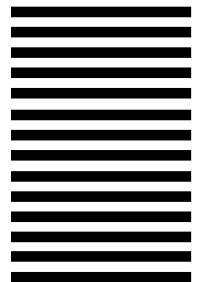
The manufacturer makes no other warranty, either expressed or implied, with respect to its products. The manufacturer specifically disclaims the implied warranties of merchantability and fitness for a particular purpose. However, any implied warrant of merchantability or fitness that may apply is limited to time periods listed above. Some states or provinces do not allow exclusion or limitations on implied warranties, so the above limitation or exclusion may not apply.

The manufacturer shall have no liability for any loss or damage, direct or consequential, arising out of the use or inability to use the product.

Cut Here



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL

FIRST CLASS PERMIT NUMBER 44 ANAHEIM, USA
POSTAGE WILL BE PAID BY ADDRESSEE

GYR, INC.
GYR SERVICE GROUP
1515 S. MANCHESTER AVENUE
ANAHEIM, CA 92802-9907



North and South American Information

1515 South Manchester Avenue
Anaheim, California USA 92802-2907

Sales

Tel: 714.772.1000 or 800.854.6853*
Fax: 714.780.7485 or 800.388.6363*

Technical Service and Support

Tel: 714.780.7923 or 800.445.9524*
Fax: 714.780.7943

European, Middle East, and African Information

530-535 Eskdale Road
Winnersh Triangle
Wokingham, Berkshire
United Kingdom RG41 5TU

Sales Tel: +44 (0) 118 927 4602
Service Tel: +44 (0) 118 927 4603
Fax: +44 (0) 118 944 0076



Gyyr, Inc. on the Internet
www.gyyr.com

Information furnished by Gyyr is believed to be accurate and reliable. However, no responsibility is assumed by Gyyr for its use nor for any infringements of patents or other rights of third parties that may result from its use. No license is granted by implication or otherwise under any patent rights of Gyyr, Inc. Specifications subject to change without notice.



*800 phone numbers only available from USA and Canada